SOUTH AMERICAN BLATTIDAE FROM THE MUSEUM NATIONAL D'HISTOIRE NATURELLE, PARIS, FRANCE.

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Having recently reported on the undetermined American Dermaptera of the Paris Museum,[1] the undetermined American Blattidae were next sent us for study by Monsieur Lucien Berland of that institution. The North American material does not include any large collections and will be reported on in several papers based largely on the Philadelphia collections and now in the course of preparation.

The South American series, on the other hand, proved to be large and intensely interesting. As it was almost entirely from three very distinct regions (French Guiana, southeastern Brazil and northern Argentina), we have prepared a single report on the collections, dividing it into three sections on a geographic basis and have included material of our own collections which had not previously been studied.

The series sent by the Paris Museum has been returned, with the exception of sets of duplicates, now in the collection of the author, deposited at The Academy of Natural Sciences of Philadelphia. We have also been most generously permitted to retain certain unique individuals of previously known species, of great importance in our futher studies on the subject. For these, an equivalent in other material has been sent the Paris Museum.

The 637 specimens recorded represent 49 genera and 99 species, of which 8 genera and 34 species are described as new.

We wish to thank most heartily, Monsieur Lucien Berland and Docteur Lucien Chopard, for their kind assistance in affording us the opportunity to study this material.

Section I. French Guiana.

This series represents the first large collection of Blattidae to be studied from French Guiana. The series includes 103 specimens,

[1] Proc. Acad. Nat. Sci. Phila., 1920, pp. 337 to 353, (1921).

representing 23 genera and 32 species, of which 3 genera and 9 species are new. Though large, the collection probably includes only a small percentage of the Blattidae to be found in French Guiana, one of the richest regions of tropical South America.

Among the new species, most remarkable and interesting are; *Sciablatta poecila, Leuropeltis atopa, Zetoborella gemmicula* and *Oulopteryx dascilloides*. The large Panchlorid, *Schizopilia fissicollis*, is one of the most interesting species of the region, due to the extraordinary pronotal specialization. This species appears to be rare in collections.

ECTOBIINAE.

Anaplecta maronensis new species. Plate IX, figure 3.

This minute insect agrees closely with *A. cabimae* Hebard in size and form; differing in the buffy pronotal disk with large prouts brown suffused area above the head, buckthorn brown and consequently distinctly less tawny tegmina and decidedly longer appendicular field of the wings.

Type: ♀ : La Forestière, Upper Maroni River, French Guiana. [Paris Museum.]

Size very small, form slender for the genus. Head scarcely longer than broad; vertex evenly convex, without distinct ridges over the antennal sockets; ocellar spots subobsolete. Pronotum approaching oval, the caudal margin showing no more truncation than the mesal portion of the cephalic margin, very feebly obtuse-angulate convex; surface weakly convex, with no trace of discal sulci. Tegmina extending a brief distance beyond apex of abdomen, narrow; costal margin very feebly convex to near the apex, where it bends more sharply to meet the sutural margin, which is almost straight, apex sharply rounded; costal veins inconspicuous, not numerous (8), with a few spurious intermediate veins distad; discoidal sectors two in number. Wings not broad; costal veins simple, subobsolete in clouded area (4 to 5), combining with the similar distal veinlets (4 to 5), which also spring from the discoidal vein as it curves to meet the median vein at the distal extremity of the medio-discoidal area; medio-discoidal area, before this point, without transverse veinlets; appendicular field in length about four-fifths that of remaining portion of wing, length appreciably greater than width. Supra-anal plate roundly produced, showing scarcely any angulation. Subgenital plate of the valvular type characteristic of the genus. Ventro-cephalic margin of cephalic femora with a single very slender and elongate proximal spine, succeeded by a row of microscopic, very short, rather closely set spinulae, terminated distad by two very slender spines, very elongate in increasing ratio distad. Other

femoral margins, pulvilli, tarsal claws and arolia as characteristic of the genus.[2]

Allotype: ♀; same data as type. [Hebard Collection.]

Specimen much damaged. Agrees with type in ambisexual characters, differing as follows. Form almost imperceptibly more slender. Genitalia so damaged that the subgenital plate alone can be seen to bear two simple styles, much of the type found in *A. lateralis* Burmeister, the sinistral being the longer and heavier and directed dextrad.

Head chestnut brown. Pronotum with disk ochraceous-buff, with a large suffusion of prouts brown in area above the head, lateral portions translucent buffy. Tegmina translucent buckthorn brown, except in narrow marginal field which is translucent buff. Wings with appendicular field heavily tinged with mummy brown. Cerci, underparts and limbs warm buff. Ventral surface of abdomen ochraceous-buff, suffused broadly but not heavily both laterad and distad with prouts brown.

Length of body ♂ 4, ♀ 4.1; length of pronotum ♂ 1.2, ♀ 1.2; width of pronotum ♂ 1.7, ♀ 1.7; length of tegmen ♂ 3.6, ♀ 3.9; width of tegmen ♂ 1.4, ♀ 1.4; length of appendicular field of wing ♂ 2.5, ♀ 2.5 mm.

This strikingly colored species is known from the described pair.

Anaplecta pulchella Rehn.

1906. *Anapleeta pulchella* Rehn, Proc. Acad. Nat. Sci. Phila., 1906, p. 262. [♀; Demerara, British Guiana.]

Albina, Maroni River, Dutch Guiana, 1♂.

This specimen, the first male of the present species to be studied, is seen to have the supra-anal plate large, extending as far as the subgenital plate, with lateral margins converging weakly, then more strongly and curving into the truncate distal portion. The subgenital plate with distal margin between the styles transverse and moderately hairy, the dextral margin simple, oblique, the sinistral margin transverse to sinistral style, with surface of plate in that section broadly channeled, this portion produced into the sinistral style, which is straight, produced for a brief distance, the margin at the inner margin of this style suddenly produced for a short distance, in consequence of which the sinistral style is deeply inset, its projecting portion equal in size and extending caudad the same distance as the well-socketed, simple dextral style.

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[2] Described in Mem. Am. Ent. Soc., No. 4, p. 17, (1920).

PSEUDOMOPINAE.

Sciablatta poecila[3] new species. Plate IX, figures 12, 13, 14 and 15.

The comparatively thorough color description of Walker's *Blatta varicornis* from Santarem, Brazil,[4] leaves little doubt but that the present species is very closely related. From that description, *varicornis* appears to differ only in the tegmina; "brown, with whitish veins, and with a broad whitish hyaline costal space which tapers towards the tip." The structural characters will probably show much more important differences for that species, though we feel that it may safely be assigned to *Sciablatta*.

Compared with the genotype, *S. mamatoco* Hebard, described from Santa Marta, Colombia,[5] *poecila* differs in the male sex in the smaller size, broader form, delicate but more intricate and extensive markings, proportionately much broader pronotum, proportionately broader tegmina, with apices more nearly median in position and discoidal sectors slightly more oblique and subgenital plate, with the fused styles, much more elongate and slender.

In the specialization of the male subgenital plate and dorsal surface of the abdomen, greatest convergence in the known species of the Blattellae to the characteristic type found in the Oxyhaloid genus *Chorisoneura* is shown by this species.

The intricate markings of this insect are so delicate, except on head and antennae, that their real beauty is not realized until a microscopic examination is made.

Type : ♂; St. Jean du Maroni, French Guiana. March. [Paris Museum.]

Size medium small for the Group Blattellae, form very broad for the Group. Interocular space moderately broad, three-quarters as wide as that between the antennal sockets, flattened and showing weak, irregular impressions. Lateral margins of cheeks converging distinctly ventrad. Maxillary palpi very short, third joint very slightly longer than the enlarged fifth joint, fourth joint two-thirds as long, enlarged regularly and considerably distad. Tegmen with discoidal vein an equal distance from the costal and sutural margins mesad, costal margin rounding toward sutural slightly more than is usual in the Group, discoidal sectors (13 and 15) decidedly oblique, as oblique as the costal veins. Wings with (8) proximal costal veins moderately thickened in distal portions, mediastine vein unbranched, ulnar vein with (8, including two sub-

[3] From ποίκίλη = dappled.
[4] Cat. Blatt. Br. Mus., p. 216, (1868).
[5] Trans. Am. Ent. Soc., XLVII. p.115, (1921).

divisions) complete branches, intercalated triangle ample, nearly two-thirds as broad as long. Dorsal surface of abdomen with sixth tergite shallowly concave meso-proximad, this area transverse oval in outline, its surface carpeted with agglutinated hairs. Seventh and eighth tergites distinctly narrower, moderately exposed along their caudal margins. Supra-anal plate triangular with apex blunted, subchitinous, submarginate, its length approximately two-fifths its basal width, showing no slight emargination at the cercal bases as does that of *mamatoco*. Cerci much as in that species, but smaller, the (10) joints similarly well defined. Paired plate beneath supra-anal plate large and unspecialized. Subgenital plate with surface very weakly convex, very short, sinistral portion slightly more produced than dextral, caudal margin nearly transverse, showing very slight production to median fourth, dextrad very feebly concave, median portion fusing with the large, elongate and lamellate styles, which are represented by nearly vertical plates, attingent at their distal extremities, each about two and one-half times as long as its basal width, the disto-dorsal angle very broadly convex, the disto-ventral angle bluntly, but much more sharply, convex. These plate-like cerci in the present species give to the subgenital plate a strongly Chorisoneurine facies. Limb armament, pulvilli, arolia and tarsal claws as characteristic of the genus.[6]

General coloration buffy, with a faint tinge of buckthorn brown. Head very pale flesh color, occiput with four irregular, vertical streaks and flecks of dark prouts brown, a transverse band of prouts brown between the eyes just above the ocelli, narrow laterad but wider mesad, due to the greater convexity of its dorsal margin, a very broad transverse band of prouts brown between the antennal sockets, which contains a very broadly V-shaped transverse buffy area mesad. Mouthparts and palpi clear clay-color. Antennae in proximal (24 joints) portions clear clay-color, succeeding ten joints mummy brown, followed by a striking and broad annulus (including 5 joints) of warm buff, the remaining distal joints mummy brown. Pronotum with disk light ochraceous-buff, broad lateral portions transparent, the whole faintly tinged with buckthorn brown, disk thickly tessellate with minute dots and a few lines of prouts brown, as figured, broad lateral portions and cephalic margin marked with more scattered and even smaller dots of prouts brown, the entire immediate margin, from point of greatest width caudad, of this color. Tegmina transparent, faintly tinged with buckthorn brown, marginal field with many very minute flecks of ochraceous-tawny, other portions with minute areas between veins, spurious veins and veinlets ochraceous-tawny, these proximad irregularly square or transverse, distad longitudinally linear and all so fine as to be individually scarcely appreciable to the naked eye.

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[6] Described in Trans. Am. Ent. Soc., XLVII, p. 115, (1921).

Wings transparent, showing a faint tawny tinge, area of costal veins in proximal portion clouded, in basal portion with bister and in area of enlarged portions of veins buffy, in distal portion with narrow, interrupted suffusions of bister between the veins, this more weakly continued around the distal margin of the anterior field in buckthorn brown. Remaining dorsal surface ochraceous-buff, shading to chestnut brown laterad and on supra-anal plate, the immediate latero-caudal angles of the tergites and free margin of the supra-anal plate buffy, these areas, however, not sharply defined. Cerci clear ochraceous-buff. Limbs clear ochraceous-buff, coxae in large external portions dark prouts brown, median femora in a small area and caudal femora in a much larger area flecked ventro-distad on caudal faces with dark prouts brown, the corresponding tibiae with several heavy flecks of this color on dorsal and caudal faces, the cephalic tibiae with fewer and smaller weak brownish areas. Ventral surfaces of abdomen light ochraceous-buff, with an irregular fleck and suffusion, as well as dots, of prouts brown laterad toward the laterad margins.

Length of body 10, length of pronotum 2.6, width of pronotum 4, length of tegmen 11.2, width of tegmen meso-proximad 4, width of tegmen mesad 3.9, length of wing 10.6, width of wing 6.3, width of intercalated triangle 1.7, length of caudal femur 3.7 mm.

The type of this extraordinary insect is unique.

Neoblattella platystylata new species.

Charvein and St. Jean du Maroni, French Guiana.

Described on page 229.

Neoblattella adspersicollis (Stål)

1861. *Blatta adspersicollis* Stål, Kongl. Svenska Freg. Eugenie's Resa, Ins., p. 308. [♂; Rio de Janeiro, [Brazil].]

La Forestière, Upper Maroni River, French Guiana, 1 ♂.

This large species is of particular interest as genotype of *Neoblattella*, see page 232.

LEUROPELTIS[7] new genus.

This genus is erected to include one of the most aberrant forms of the Group Blattellae known to us. The broad flattened head and prominent eyes suggest a further development of the type usually shown by species of the Group Euphyllodromiae. The flat pronotum and armament of the ventro-cephalic margins of the cephalic femora afford distinctive characters.

Though agreeing in the flattened form (though this is more decided in the present insect), character of limb armament, pulvilli, tarsal

[7] From λευρὸς = flat and πέλτη = a light shield.

claws and arolia, *Leuropeltis* differs very strikingly from the Nyctiborine genus *Pseudischnoptera* in the even more decidedly flattened and shorter head, eyes which are more decidedly developed laterad and extend ventrad well beyond the antennal sockets, more transverse, oval pronotum with greatest width mesad and lateral portions not at all deflexed, broader tegmina with longer anal field, spurious veins absent and discoidal sectors decidedly oblique, broader wings with area of costal veins much wider and ulnar vein with all branches complete, unspecialized median segment but specialized sixth abdominal tergite of male, very distinctive genitalic development in this sex, ventro-cephalic margin of cephalic femora with two heavier terminal spines and both cephalic and caudal ventral margins of other limbs armed, the caudal margins less heavily than in *Pseudischnoptera*.

In linear arrangement, the genus can not be satisfactorily assigned, due to the fact that many aberrant genera of the Group Blattellae exist, radiating away from the normal toward other totally different types. We place *Leuropeltis* after *Liosilpha* Stål, from which genus, however, it is very widely separated.

Genotype.—*Leuropeltis atopa* new species.

Generic Description. Genus known only from the male sex. Head flattened, eyes large, widely separated and prominent, antennae coarse and well supplied with short hairs. Pronotum rectangularly oval, moderately transverse, greatest width mesad, surface flat, the disk showing two pairs of oblique impressions. Tegmina long and broad, anal field elongate, discoidal sections strongly oblique. Wings fully developed, marginal field extending over half distance to apex, scapular field very broad in distal half, costal veins thickening but not clubbed distad, ulnar vein with branches complete, intercalated triangle subobsolete. Abdomen with latero-caudal angles of five proximal tergites sharp, rectangulate, weakly produced, tergites decidedly narrower after sixth, sixth tergite specialized mesad. Cephalic femora with ventro-cephalic margin unarmed except in distal third, where it is supplied with short, stout spines, terminating in two heavier elongate distal spines, of which the more distal is slightly the more elongate; ventro-caudal margin unarmed except in distal third, where it is supplied with a few moderately large, elongate spines. Other ventral femoral margins moderately supplied with similar spines, which, particularly on the cephalic margins, are not as heavy or as large as those often developed in the Pseudomopinae. Caudal metatarsus armed ventrad with two rows of minute spinulae and supplied distad with a moderately large pulvillus, three succeeding tarsal joints supplied with similar pulvilli, occupying their entire ventral surfaces. Large

chitinous arolium present between the bases of the rather stout, simple, symmetrical tarsal claws.

Leuropeltis atopa new species. Plate X, figures 11, 12 and 13.

This species is so distinctive that a helpful comparison can hardly be made with any known Blattid. The rich brown of the tegmina and pronotal disk, pale lateral portions of the pronotum and bicolored antennae, are the more striking features of coloration.

Type: ♂; Gourdonville, French Guiana. October. [Paris Museum.]

We add the following features to those given in the generic diagnosis. Interocular space (1.1 mm.) three-quarters as wide as that between the antennal sockets. Ocellar spots small. Inter-ocular-ocellar area flattened, very weakly concave. Maxillary palpi with distal joint equal in length to third, the dorsal margin showing a very weak concavity, fourth joint three-quarters as long as third, enlarging evenly and rather strongly distad. Pronotum with margin above head transverse, showing a very feeble convexity, caudal margin transverse very broadly and weakly convex, lateral margins evenly convex; first pair of impressions on disk situated slightly cephalad of the median line and parallel to the normally placed latero-caudal sulci. Tegmina with greatest width at apex of anal field, thence narrowing very feebly to distal portion where the narrowing is more decided, particularly on the sutural margin, with apex situated slightly beyond the median point toward the costal margin. Wings with(12) thickened costal veins; ulnar vein with six branches, two of which again divide before the margin of the wing. Sixth tergite subchitinous in median portion, with a small, rounded prominence mesad near the caudal margin of the preceding tergite, the bases of which prominence latero-cephalad are supplied on each side with a minute tuft of agglutinated hairs. Supra-anal plate triangularly produced, with apex curving ventrad and broadly rounded, length two-fifths distance between cercal bases. Cercus with ten joints, the tenth moderately elongate oval.[8] Subgenital plate moderately asymmetrical, the sinistral margin situated further caudad than the dextral, straight, transverse to median section; the dextral margin broadly concave oblique to median section; median section with two large and roughly triangularly rounded plates on each side, the sinistral more inset, due to the position of the sinistral free margin, between these the median portion of the plate is produced in a large, but no more produced, likewise roughly triangular plate, the emarginations between this and the styles (developed into plates in this species) rather broadly V-shaped. Ventro-cephalic margin of cephalic femora with (6 and 7) short stout spines distad, ventro-caudal margin with (3) heavier,

[8] The sinistral cercus is apparently deformed in the present specimen.

longer spines in homologous portion of margin. Caudal metatarsus one and one-quarter times as long as combined length of succeeding joints.

Head and palpi chestnut brown, obscurely vertically streaked with paler on occiput, ocellar spots buffy. Antennae blackish chestnut brown in proximal third, thence hazel. Pronotum blackish chestnut brown in large truncate-trigonal area, margined very narrowly laterad with warm buff; lateral portions transparent, very feebly tinged with buff. Tegmina weakly translucent, clear solid hazel tinged with chestnut brown, particularly at the humeral trunk and along the costal margin. Wings transparent, anterior field tinged with saccardos umber, heaviest in area of enlarged portion of costal veins, very weak between discoidal and ulnar veins except distad and very weak between unbranched portion of ulnar vein and anal sulcus; radiate field very weakly tinged with saccardos umber, the veins of that color. Dorsal surface of mesonotum, metanotum and abdomen shining and very dark chestnut brown. Cerci dark chestnut brown. Ventral surface and limbs blackish, the subgenital plate and limbs beyond the femora paling to very dark chestnut brown.

Length of body 15, length of antenna 18.8, length of pronotum 4, width of pronotum 5.7, length of tegmen 17.9, width of tegmen 5.9, length of wing 15, greatest width of costal field of wing 2, length of cercus 2.9, length of caudal tibia 5.7, length of caudal metatarsus 2.1 mm.

The type of this remarkable insect is unique.

Euphyllodromia literata (Burmeister)

1838. *Bl[atta] literata* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 497. [Surinam [= French Guiana].]

1839. *Blatta alternans* Serville, Hist. Nat. Ins., Orth., p. 114. [♀, Cayenne [= French Guiana].]

1903. *Pseudophyllodromia pavonacea* Rehn, Trans. Am. Ent. Soc., XXIX, p. 262. [♂; Bartica, British Guiana.]

Study of the Guianan material now in the Philadelphia collections and of the literature, furnishes much evidence indicating the above synonymy. Rehn's *pavonacea* was described at a time when little material was available, and the generic association of the American Blattidae in chaos. The description of Serville's *alternans* was thus apparently overlooked, while nothing could be done with *literata* of Burmeister, until much Guianan material could be secured.

It is unfortunate that Burmeister's wretched description of *literata*, occupying less than two lines, has a year's priority over Serville's readily recognizable diagnosis of *alternans*.

Nouveau Chantier, French Guiana, 1 ♂.

St. Jean du Maroni, French Guiana, October, 1 ♀.
La Forestière, upper Maroni River, French Guiana, 2 ♀.

Euphyllodromia chopardi[9] new species. Plate XV, figures 1 and 2.

This species is related to *E. fasciatella* (Saussure), differing in the slightly larger eyes, slightly narrower interocular space, heavier latero-caudal depressions of pronotal disk, heavier and differently specialized appendages of the male subgenital plate and longer caudal metatarsi.

In coloration it differs in having the maxillary palpi not immaculate, as the distal joint is suffused with mummy brown in its ventral marginal portion; the pronotal disk margined with a narrow whitish suffusion and not immaculate, but having two heavy, extensive lateral suffusions of dark brown, which fuse caudad, and the tegmina with similar translucent and transparent areas, but entirely lacking pearl gray lines and spots.

Type: ♂; Bartica, British Guiana. December 19, 1912. (H. S. Parish.) [Acad. Nat. Sci. Phila., Type no. 5369.]

Size rather small, form moderately slender for the genus, delicate structure normal. Head with interocular space (.6 mm.) about three-fifths width between antennal sockets. Ocellar spots small and weakly defined. Maxillary palpi with third joint three-quarters as long as fourth; fourth very strongly triquetrous, widening evenly distad so that it becomes fully two and one-half times as wide as third; fifth joint three-quarters as long as fourth, moderately expanded, greatest width near base, ventral margin sub-convex and oblique from that point to apex. Pronotum rather decidedly transverse; cephalic margin weakly convex, truncate; lateral margins rather strongly convex, this greatest caudad; caudal margin transverse, but showing an even and very broad obtuse-angulation, with angle very broadly convex; discal sulci very broad but well developed. Tegmen and wings elongate and very delicate. Dorsal surface of abdomen as described for *E. decastigmata* Hebard,[10] apparently characteristic of the genus, sixth tergite very shallowly concave in mesal portion, there rather thickly supplied with agglutinated hairs. Supra-anal plate strongly transverse, broadly and weakly triangularly produced between the cercal bases, with rounded apex obtuse-angulate. Cercus as in *decastigmata*, tapering to the acute apex. Paired plate beneath supra-anal plate large and unspecialized. Subgenital plate almost symmetrical, the sinistral margin almost straight, the dextral margin rather strongly concave to the median portion; median portion with two deeply inset, large

[9] In honor of the distinguished Orthopterist, Dr. Lucien Chopard.
[10] Mem. Am. Ent. Soc. No. 4, p. 84, (1920).

plates, which are attingent distad; the sinistral as long as broad and nearly triangular, with broad apex rounded; the dextral twice as long as broad and nearly rectangular, with similar apex; fitting tightly between the bases of these styles is a triangular plate, with dextral margin curled slightly caudad and armed with minute, sharp, straight teeth, which slant slightly proximad. Armament of limbs, pulvilli, tarsal claws and arolia as characteristic of the genus. Succeeding tarsal joints only half as long as caudal metatarsus.

Allotype: ♀; same data as type, but taken February 10, 1913. [Acad. Nat. Sci. Phila.]

Agrees closely with type in coloration, color-pattern and in structural features except the following. Interocular space slightly over half width between antennal sockets. Dorsal surface of abdomen unspecialized. Supra-anal plate very strongly transverse, the free margin very weakly obtuse-angulate convex on each side to the weakly concave median portion. Subgenital plate with lateral margins feebly convex and hardly convergent to opposite cercal bases, thence rounding strongly and oblique, broadly concave to distal portion, which is strongly V-emarginate, the apices thus formed broadly rounded, the emargination occupied by a soft mantle.

Head, underparts and limbs weak ochraceous-tawny, the occiput slightly deeper than the face, abdomen ochraceous-tawny with styles largely suffused with chestnut brown. Maxillary palpi light buff, the half of the distal joint toward the ventral margin heavily suffused with mummy brown (this showing variation in width in the series), broader on the caudal than on the cephalic face. Antennae with first joint ochraceous-tawny, succeeding joints blackish mummy brown, the proximal joints sometimes ochraceous-tawny dorsad. Pronotum in all but discal portion transparent, faintly tinged with buckthorn brown and with a weakly defined, narrow, opaque margin of whitish about the disk; disk tawny, with two large suffusions of mummy brown, which unite caudad and send a very short stout ray cephalad into the median paler area. In intensive examples these suffusions almost completely obliterate the paler median area, leaving only a medio-longitudinal line and fleck of ochraceous-tawny cephalad. Tegmina with marginal field, areas between discoidal and median veins and anal sulcus and the two mesal areas between veins of anal field transparent, very faintly tinged with buckthorn brown; remaining portions more heavily tinged with buckthorn brown, becoming cinnamon-brown in proximal area of costal veins proximad and tapering to a weak mars brown suffusion in this area distad; the sutural margin, particularly in the anal field and area between anal sulcus and first vein of anal field, rather heavily suffused with mars brown; a broad suffusion of ochraceous-orange sweeping obliquely across the discoidal field,

beyond the apex of the anal field. Wings transparent, iridescent, feebly suffused distad, veins chestnut brown, a median suffusion of chestnut brown in area of costal veins, beyond which the narrow marginal area is buffy. Mesonotum ochraceous-tawny, heavily and extensively suffused with mummy brown in latero-cephalic portions covered by the pronotum, this showing through that transparent portion of the pronotum and giving it the appearance of being darkened caudad, with a meso-caudal fleck of warm buff; metanotum similar except that there is no median fleck, but a similar fleck of warm buff on each side caudad of the dark suffusions. Dorsal surface of abdomen ochraceous-orange, the median segment with a heavy transverse suffusion of mummy brown, which in intensive examples occupies the entire segment and is blackish.

Measurements (*in millimeters*).

	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
♂					
Bartica, British Guiana, *type*	10.3	2.8	3.7	10.3	2.8
Bartica, British Guiana, *paratypes* (9)	10.–10.9	2.6–2.8	3.6–3.7	9.6–10.3	2.6–2.8
Gourdonville, French Guiana	9.2	2.6	3.6	9.8	2.6
♀					
Bartica, British Guiana, *allotype*	10	2.7	3.7	9.8	2.8
Bartica, British Guiana, *paratypes* (2)	9.2–10.3	2.7–2.7	3.5–3.6	9.8–10	2.5–2.6
Demerara, British Guiana,(4)	9.9–10.5	2.7–2.7	3.6–3.7	9.7–9.9	2.7–2.7

Specimens Examined; 20; 12 males and 8 females.

Bartica, British Guiana, December 10 to June 12, 1912 and 1913, (H. S. Parish), 10♂, 4♀, *type*, *allotype*, *paratypes*, [A. N. S. P.].

Demerara, British Guiana, 1901, (R. J. Crew),4 ♀ [11],[Hebard Cln.]

Gourdonville, French Guiana, October, 1♂, [Paris Mus.].

Charvein, French Guiana, November, 1♂, [Hebard Cln.].

NYCTIBORINAE.

Pseudischnoptera lineata (Olivier) Plate XI, figure 14.

1789. *Blatta lineata* Olivier, Encycl. Méthod., Ins., IV, p.,17. [No locality given.[12]]

St. Jean du Maroni, French Guiana, 1 ♂.

Kourou, French Guiana, April, 1 ♂.

This strikingly colored and extraordinary species has been dis-

[11] Recorded by Rehn as *Pseudophyllodromia obscura* Saussure, Proc. Acad. Nat. Sci. Phila., 1906, p. 264, (1906).

[12] This species has subsequently been recorded from Cayenne and the Antilles, the latter very possibly in error.

cussed at considerable length by Saussure.[13] The following features have, however, never been given.

Pronotum very much flattened but with comparatively narrow pale lateral portions showing some slight deflection, greatest width at latero-caudal angles. Tegmina with discoidal sectors almost longitudinal, false longitudinal veins as decided as the veins themselves and with supplementary false veinlets between these in distal portions. Limbs comparatively short and heavy. Ventro-cephalic margin of cephalic femora armed in distal third with (5 and 8) short but decidedly stout spines, terminating in three heavier spines, slightly more elongate in slightly increasing ratio distad, ventro-caudal margin with (4) heavier, longer spines in distal third. Large pulvilli present between the rather stout, simple, nearly symmetrical tarsal claws. Median segment with a large, transverse, median depression, formed by the fusion of two circular depressions.[14] Supra-anal plate triangularly produced, with a large, straight, heavy spine directed caudad at each side of the broadly rounded apex. Concealed genitalia including at least three very heavy, slightly curved spines. Subgenital plate as figured.

Length of body 17-17.6, width of interocular space .9, length of pronotum 4.8-4.8, width of pronotum 6.6-6.5, length of tegmen 17.7-18, width of tegmen 5.3-5.7, length of wing 14, width of wing 7.7 mm.

This insect does not belong to the Pseudomopinae, as has been supposed, but is clearly a member of a distinctive group of the Nyctiborinae. This is shown by the general structure, character of tegminal and wing venation, limb characters and type of male subgenital plate, which type is found in numerous species of this subfamily only. The genus does not agree with the majority of the genera of the Nyctiborinae, showing complete absence of pilosity and only very slightly asymmetrical tarsal claws.

Nyctibora holosericea Burmeister.

1838. *N[yctibora] holosericea* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 502. [Cameta, Brazil.]

Gourdonville, French Guiana, 1 ♂.

Charvien, French Guiana, 1 ♀.

The present specimens appear to agree with Burmeister's two line description of *holosericea* better than any we have previously seen from South America. Comparing the material here recorded with Central American specimens of *N. noctivaga* Rehn, the two species, as here recognized, are seen to be very closely related.

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[13] Miss. Sci. Mex., Rech. Zool., VI, p. 66, (1870).

[14] Partially filled with a pale waxy substance, which in drying has become hard, like shellac.

In the Guianan material the interocellar area is not dark, being as pale as, or paler than, the face; in the specimens of *noctivaga* the interocular area, to slightly below the ocelli, is very dark, darker than the face in paler examples, as dark as the face when the face is very dark. The dorsal surface of the abdomen is comparatively pale, darkening slightly caudad, without striking markings. In the males the supra-anal plate differs.

Length of body ♂ 30, ♀ 36; length of pronotum ♂ 8.3, ♀ 10; width of pronotum ♂ 12.8, ♀ 14.1; length of tegmen ♂ 37.5, ♀ 38.6; width of tegmen ♂ 13.9, ♀ 15 mm.

Paratropes elegans (Burmeister)

1838. *Ph[oraspis] elegans* Brumeister, Handb. Ent., II, Abth. II, Pt. I, p. 493. [Surinam?]

La Forestière, upper Maroni River, French Guiana, 1 ♀.

EPILAMPRINAE.

Epilampra azteca Saussure.

1868. *Epilampra azecta* Saussure, Rev. et Mag. de Zool., (2), XX, p. 356. [♂, Mexico.[15]]

Nouveau Chantier, French Guiana, 1 ♂.

Epilampra grisea (De Geer)

1773. *Blatta grisea* De Geer, Mém. l'hist. Ins., III, p. 540, pl. 44, fig. 9. [Surinam.]

Charvein, French Guiana, 1 ♀.

Epilampra abdomen-nigrum (De Geer)

1773. *Blatta abdomen-nigrum* De Geer, Mém. l'hist. Ins., III, p. 538, pl. 44, fig. 5. [[♂], Surinam.]

St. Jean du Maroni, French Guiana, 1 ♂, 1 ♀.

Epilampra maculicollis (Serville)

1839. *Blatta maculicollis* Serville, Hist. Nat. Ins., Orth., p. 92. [♀, Brazil.]

La Forestière, upper Maroni River, French Guiana, 1 ♀.

Epilampra conspersa Burmeister

1838. *E[pilampra] conspersa* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 505. [Pará, Brazil.]

St. Jean du Maroni, French Guiana, 1 ♀.

Nouveau Chantier, French Guiana, 1 ♀.

Tollinche, Maroni River, French Guiana, 1 ♀.

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[15] The Cuban material, originally included, represented a distinct species.

Hyporhicnoda maronensis new species. Plate XII, figure 5.

This species is very closely related to *H. litomorpha* Hebard, from Colombia. Decided similarity is shown by the color and texture of the dorsal surface in the female sex. It differs in the more slender form, head with narrower interocular space and slightly heavier impressed punctae, stronger convexity of the thoracic segments and in the decidedly greater reduction of the limb armament.

Type: ♀; La Forestière, upper Maroni River, French Guiana. [Paris Museum].

Size medium, form elongate and rather narrowly oval for the genus, the greatest width being across the abdomen mesad. Head hidden under pronotum, broad, the reduced eyes widely separated by a distance (1.8 mm.) slightly greater than that between the weakly defined ocellar spots; exposed surface coarsely and rather thickly impresso-punctate, face flattened, very feebly convex, with two transverse impressions just below and between the ocellar areas and showing very slight concavity on each side above the labial suture. Pronotum extending well beyond head, showing a very feeble subcucullate condition, very strongly convex to the scarcely reflexed, narrow lateral portions of the cephalic margin; this margin subcingulate, broadly convex mesad but more strongly so than in *litomorpha*, with lateral margins broadly convex to the latero-caudal angles, which are rounded and weakly produced caudad, forming an angle of slightly less than ninety degrees; caudal margin broadly convex mesad, showing broad and very weak convexity laterad, so that it is nearly transverse. Mesonotum and metanotum with latero-caudal angles produced and sharply rounded. Entire dorsal surface apparently smooth, somewhat polished, but under high magnification seen to be supplied with minute flattened rounded rugae, these slightly more apparent on the caudal margins of the segments, so that they appear very finely beaded. Tegmina and wings absent. Supra-anal plate heavily chitinous, over twice as broad as long, the free margin convex, showing slight flattening laterad and a trace of median emargination. Cerci very short and lamellate, scarcely projecting beyond the body outline. Subgenital plate very large. Limbs showing very decided atrophy of armament. Ventro-cephalic margin of cephalic femora armed with three heavy spines, succeeded by an irregular row of rather elongate chaetiform spines, terminated by a heavy distal spine. Other ventral femoral margins, except caudal margins of caudal femora, which are wholly unarmed, supplied with a single heavy distal spine, all with widely spaced large spiniform hairs. Tarsi heavy, caudal metatarsus as long as combined length of succeeding tarsal joints, with two rows of spines ventrad and more distantly placed spines on the sides. Four proximal tarsal joints supplied with pulvilli, these occupying the entire ventral surfaces except that of the meta-

tarsus, the pulvillus of which is distal and about twice as long as wide. Tarsal claws simple, symmetrical, with very heavy bases. Arolia absent.

Dorsal surface blackish brown, the pronotum with a paired suffusion of sayal brown, extending a brief distance along the cephalic margin each side of the median point. Head tawny, the face darkened to mars brown. Antennae and palpi ochraceous-tawny. Ventral thoracic surface and limbs buckthorn brown, the latter with femora tinged with tawny, the tibiae deepening to mars brown in distal portions, spines mars brown. Ventral surface of abdomen deep carob brown, paling to rich chestnut meso-proximad.

Length of body 28.8, length of pronotum 9.5, width of pronotum 12.2, greatest body width 15.6, length of caudal femur 7.1, length of caudal metatarsus 2 mm.

In addition to the type, a single half-grown female, from Ilet la Mère, French Guiana, is before us. This specimen bears an additional spine on the median portion of the ventro-cephalic margin of the median femora, two similarly situated spines on the caudal femora and four and five proximal spines on the ventro-cephalic margins of the cephalic femora.

BLATTINAE.

Periplaneta brunnea Burmeister.

1838. *P[eriplaneta] brunnea* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 503. [♂, ♀: Chile; Demerara, [= British Guiana].]

St. Jean du Maroni, French Guiana.

PANCHLORINAE.

Panchlora cubensis Saussure.

1862. *P[anchlora] cubensis* Saussure, Rev. et Mag. de Zool., (2), XIV, p. 230. [♀, Cuba.]

St. Jean du Maroni, French Guiana, 1♂, 1♀.

Nouveau Chantier, French Guiana, 1♂.

La Forestière, upper Maroni River, French Guiana, 1♂.

Ouanary, French Guiana, 1♂.

Schizopilia fissicollis (Serville) Plate XII, figure 6.

1839. *Blatta fissicollis* Serville, Hist. Nat. Ins., Orth., p. 85. [♀, Cayenne, [= French Guiana].]

St. Laurent du Maroni, French Guiana, 1♂.

La Forestière, upper Maroni River, French Guiana, 1♂, 3♀.

Measurements (*in millimeters*).

	Length of body	Length of pronotum	Width of pronotum	Depth of pronotal fissure	Length of tegmen	Width of tegmen
♂						
St. Laurent	33.5	10.7	18.	3.1	31.8	15.2
La Forestière	39.7	11.9	20.	3.9	34.7	17.
♀						
La Forestière	38.	11.	18.7	3.6	32.7	16.
La Forestière	38.	11.1	19.7	3.7	33.	16.7
La Forestière	39.8	11.7	20.	3.7	33.8	16.9

This very remarkable insect was previously known from the type and a single specimen, sent Guérin by Poey from Havana, Cuba. The latter specimen, with certain others recorded by Guerin,[16] almost certainly came from South America and was included in the Cuban list in error.

Three immature individuals are before us from the same locality and one from Cayenne, taken in April, 1906, which we believe represent this species. The largest, apparently in the last stage preceding maturity, like the others, shows no trace of lateral pronotal fissation and is in shape strongly flattened patelliform.

Zetobora emarginata Burmeister. Plate XII, figures 11 and 12.

1838. *Z[etobora] emarginata* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 511, No. 5. [Pará, Brazil.]

1838. *Z[etobora] cicatricosa* Burmeister, ibid., p. 511, No. 6. [Pará, Brazil.]

La Forestière, upper Maroni River, French Guiana, 1 ♂, 1 ♀.

St. Jean du Maroni, French Guiana, 1 ♂, 1 ♀.

Association of the sexes and comparison with a topotype in the Academy Collection and with the original description, furnish convincing evidence that Burmeister's *emarginata* represents the male and his *cicatricosa* the female of the same species. In this insect the female is slightly larger, with broader pronotum and tegmina than the male, the lateral angles of the pronotum subemarginate caudad, not minutely but distinctly emarginate as in the opposite sex.

Walker's *perspicua* is an unquestioned synonym, as indicated by Kirby. That author is, however, incorrect in placing *limbata* of Brunner under *emarginata* and it is by no means clear that he is justified in placing *rudis* of Walker in the same synonymy.

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[16] In Ramon de la Sagra, Hist. Cuba, Ins., (1857).

MEASUREMENTS (*in millimeters*).

	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
♂					
La Forestière, French Guiana	23.2	6.	10.9	20.5	8.4
St. Jean du Maroni, French Guiana	21.	6.3	10.8	20.	8.
♀					
La Forestière, French Guiana	22.6	6.7	12.3	20.2	9.
St. Jean du Maroni, French Guiana	23.	7.	12.1	20.	9.7
Pará, Brazil	22.6	6.9	11.8	19.6	9.

ZETOBORELLA new genus.

This genus is erected to include the smallest and one of the most remarkable species of those referable to the genus *Zetobora* and its allies.

In addition to the small size, the present genus is distinctive in the extremely transverse pronotum, with latero-caudal angles bi-emarginate, the caudal emargination being conspicuous. This shows a further development of the type found in *Zetobora emarginata* Burmeister. The pronotum has the cephalic margin very broadly convex, without being broadly though conspicuously reflexed, in the latter respect agreeing with species of *Tribonidium*. The pronotal surface is distinctive in being smooth and polished over its greater portion, the remaining areas impresso-punctate. The tegmina are suddenly emarginate mesad, when at rest leaving the lamellate lateral marginal portions of the third to sixth tergites exposed. The tegmina, though broad, are, as in *Tribonidium*, much narrower than in *Zetobora*.

Genotype.—*Zetoborella gemmicula* new species.

Generic Description. Size very small for the group, form broad, but with tegmina much narrower than in *Zetobora*. Head flat, with face broadly and shallowly concave, dorsal outline semicircular, width between the reduced eyes considerable. Ocelli represented by shallow but moderately large concavities. Distal joints of maxillary palpi very short, the last broad. Pronotum with cephalic margin very broadly convex, caudal margin transverse, latero-caudal angles bi-emarginate; surface weakly trilobate, showing very feeble reflection toward the lateral portions of the cephalic margin and none mesad, surface smooth and shining except latero-caudad and mesad toward the caudad margin, where it is impresso-punctate. Mesonotum impresso-punctulate in the exposed scutellar area. Tegmina and wings well developed, showing very slight reduction in the female sex. Tegmina with very broad and short marginal field, the scapular field narrowing suddenly and very strongly proximad, discoidal field with veins and numerous cross-veins mod-

erately irregular, the former radiating. Wings with costal veins almost obliterated beyond the elongate mediastine vein. Abdomen with first to sixth tergites lamellate produced laterad, the first with latero-caudal angles broadly rounded, the second to sixth with these angles produced caudad and sharply rounded, seventh tergite much narrower, eighth with very narrow caudal portion only exposed. Supra-anal plate sub-bilobate. Cerci small and moderately slender, with (9 or 10) joints strongly differentiated. Subgenital plate of male of the usual asymmetrical lobiform type, with two simple styles; of female ample, moderately emarginate at cercal bases, truncate distad. Limbs completely unarmed,[17] lacking genicular or other spines, ventro-caudal margins of median and caudal femora supplied with well spaced hairs. Four proximal tarsal joints scarcely longer than distal joint, supplied with large pulvilli. Large arolia present between the simple, symmetrical tarsal claws.

Zetoborella gemmicula new species. Plate XIII, figures 1 and 2.

The shining surface, smooth and very transverse pronotum and emarginate tegmina, which leave the lateral portions of the dorsum of the abdomen exposed, give this beautiful little insect a very distinctive appearance.

Type: ♂; St. Jean du Maroni, French Guiana. April and May. [Paris Museum.]

In addition to the features discussed above, we note the following. Interocular width three times ocular depth. Fourth joint of maxillary palpi half as long as third, fifth joint three-quarters as long as third, greatly expanding, its greatest width equal to length of fourth joint.[18] Pronotum extending well beyond head, with cucullation above head flattened, surface broadly concave before the two latero-caudal emarginations, the first of these very weak and lateral in position, the second decided and caudad in position, twice as long as broad, with angulate-emargination formed sharply rounded at slightly less than a right angle. Tegmina extending slightly beyond cercal apices.

Allotype: ♀; same data as type. [Paris Museum.]

Very similar to male, except as follows. Interocular width three and one-half times ocular depth. Maxillary palpi with fifth joint as long as third and wider than length of fourth. Pronotum slightly less strongly transverse, with latero-caudal emarginations less decided, so that the caudal emarginations have the angulate-emar-

[17] In the specimens of *Tribonidium* here recorded the limbs are unarmed except the ventro-cephalic margin of the cephalic femora, which is supplied in distal portion with a row of minute, chaetiform spines, terminated by a single stout, though very small, distal spine. The metatarsus is equal in length to the distal tarsal joint.

[18] Apparently somewhat variable, as in the allotype it is even wider.

gination formed more broadly rounded at more than a right angle. Tegmina extending almost to cercal apices.

Head shining blackish brown. Antennae blackish brown, with a very broad buff annulus (including ten to twelve joints) in distal portion. Pronotum shining blackish brown in caudal section and extending cephalad in median convexity above head, remaining portions transparent, tinged with warm buff, the caudal margins of this area transverse laterad, with what appears to be a blackish brown suffusion at the angles, due to the fact that there the blackish brown area extends slightly farther cephalad on the ventral surface than on the dorsal face, cephalic margin very finely blackish brown. Tegmina mummy brown, blackish brown when closed, translucent, except marginal field which is opaque. Wings transparent, tinged with mummy brown, this weak in radiate field. Dorsal surface of abdomen blackish brown, with lamellate lateral sections of second and third tergites warm buff in the female, this marking in the male the same for the third tergite, but reduced to a small spot on the second tergite.[19] Limbs and ventral surface prouts brown, deepening to blackish brown toward the abdominal periphery, but with lamellate ventral portions of second and third tergites warm buff.

Length of body ♂ 14[20]–13, ♀ 15; length of pronotum ♂ 3.8-3.7, ♀ 3.8; width of pronotum ♂ 7.2-7, ♀ 6.7; length of tegmen ♂ 11.8-12.7, ♀ 10.8; width of tegmen proximad ♂ 4.7-4.7, ♀ 4.4; width of tegmen distad ♂ 4-4, ♀ 3.7; width of tegminal marginal field ♂ 1.8-1.95, ♀ 1.8 mm.

The species is known from the described pair aud a paratypic male from St. Laurent du Maroni.[21]

Phortioeca nimbata (Burmeister) Plate XIII, figure 3.

1838. *Z[etobora] nimbata* Burmeister, Handb. Ent., II, Abth. II, Pt. 1, p. 511. [Pará, Brazil.]

La Forestière, upper Maroni River, French Guiana, 2♂, 1 ♀, 1 juv. ♀.

Nouveau Chantier, French Guiana, 2♂.

Pariacabo, French Guiana, 1 juv. ♂, 1 juv. ♀.

Charvein, French Guiana, 1 juv. ♀.

This species was placed by Saussure in what he considered the second division of the genus *Zetobora*, (*Phortioeca*). It unquestionably belongs to *Phortioeca* and not to *Zetobora* (as assigned by Kirby) This is shown by the type of pronotum, with section above head more distinctly cucullate, cephalic margin not broadly reflexed

[19] The greater portion of this conspicuous pale marking is exposed when the tegmina are at rest, due to the sudden emargination of those organs.

[20] The measurements of the male type are given first.

[21] An immature female from Tollinche, Maroni River, French Guiana, represents this or a related species.

and greater portion of surface granulate, not everywhere impresso-punctate. The present material agrees fully with Saussure's adequate description of his synonymous *Zetobora* (*Phortioeca*) *castanea*.

It is of interest to note that the measurements given by Burmeister of the body length of this and the two preceding species are in all cases considerably less than that of specimens subsequently, and apparently correctly, recorded as these species.

Length of body ♂ 20.7-23, ♀ 25; length of pronotum ♂ 6.2-6.8, ♀ 7.3; width of pronotum ♂ 9.7-10.3, ♀ 11.7; length of tegmen ♂ 20.2-21, ♀ 23; width of tegmen ♂ 7.8-8 7, ♀ 9.7 mm.

BLABERINAE.

Blaberus giganteus (Linnaeus)

1758. *B*[*latta*] *gigantea* Linnaeus, Syst. Nat., Ed. X, I, p. 424. [America.]
1802. *Blatta colossea* Illiger, Mag. Insektenkunde, I, p. 186. [Demerara, [= British Guiana].]

La Forestière, upper Maroni River, French Guiana, 1 large juv. ♂.

St. Jean du Maroni, French Guiana, 2 ♂, 1 ♀.

The above synonymy has been recently established by us.[22] In the present specimens the width of the marginal field of the tegmina is: ♂ 7.2, ♀ 7.9 mm.

Eublaberus biolleyi (Rehn) Plate XIV, figure 3, 4, 5, 6 and 7.

1906. *Blaberus biolleyi* Rehn, Proc. Acad. Nat. Sci. Phila., 1905, p. 792, fig. 1. [♀ ; Reventazon River, plains of Santa Clara, Costa Rica.]

St. Jean du Maroni, French Guiana, 1 ♂, 1 ♀, 1 juv.

These specimens, like a female from Trinidad, in the Hebard Collection, differ from the type in having the pronotal markings fused to different degrees. Such is the individual variability in these markings that we feel confident that but one species is represented.[23] This species is clearly distinct from *E. posticus* (Erichson), but the other described species[24] can not be vouched for, until extensive series can be secured. The difficulty is that, at present, there is no means of telling whether the various conditions described, with pronotum more heavily marked and suffused, represent distinct species or, in some cases, merely manifestations of decided intensive coloration in individuals of the same species.

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[22] Trans. Am. Ent. Soc., XLVII, p. 148, (1921).

[23] We figure the pronotum of the specimens before us, to show the individual variability of these markings.

[24] In chronological order the species are; 1848 *posticus* (Erichson), 1857 *sulzeri* (Guérin), 1869 *femorata* (Scudder), 1894 *thoracica* (Saussure and Zehntner) (= *posticus*), 1894 *immacula* (Saussure and Zehntner), 1903 *distanti* (Kirby), 1906 *biolleyi* (Rehn).

The two specimens here recorded show marked size diversity. Length of body ♂ 41.5, ♀ 49; length of pronotum ♂ 11.3, ♀ 13.3; width of pronotum ♂ 16, ♀ 19.1, length of tegmen ♂ 40, ♀ 46; width of tegmen ♂ 15.7, ♀ 18 mm.

CORYDIINAE.

OULOPTERYX[25] new genus.

This genus of comparatively medium-small species is one of the most distinctive found in tropical South America.

Ocelli are absent, the pronotum is transversely strongly impressed just before the cephalic margin, the pronotum and tegmina are coriaceous and polished, thickly impresso-punctate, except distad on the tegmina and very weakly to well supplied with hairs, the wings are exceptionally large for the body bulk and have a large appendicular field, which is not only folded but curled into a tight roll when these organs are at rest, the ventral femoral margins are unarmed except for a single distal spine on the ventro-cephalic margin of the cephalic femora, while pulvilli and arolia are absent.

The curled tegmina show a further development of the type found in the Ectobine genus *Theganopteryx*. The more than usually coriaceous tegmina, particularly in one species, gives to the species a decidedly coleopteroid facies.

Taking all of the characters into consideration the genus appears to be an aberrant member of the Corydiinae, and we place it in linear arrangement after *Buboblatta* Hebard and before *Ceuthobiella*, here described, though showing a development from a very different stock.

Genotype.—Oulopteryx meliponarum new species.[26]

Generic Description. Size medium small, form elongate elliptical. Head slightly longer than broad, supplied with a few scattered hairs, eyes well separated, ocelli absent, maxillary palpi rather short and heavy. Pronotum shining, coriaceous, with cephalic margin transverse, caudal margin very broadly and weakly convex, greatest width meso-cauded; surface heavily impresso-punctate and very weakly to well supplied with scattered hairs, with a strong transverse impression before the cephalic margin, the discal section irregularly bossed, the narrow lateral portion weakly reflexed. Tegmina fully developed in male, showing slight reduction in female, shining, moderately to decidedly coriaceous, with apex rather sharp-

[25] From οὐλο-πτερυξ, in allusion to the curled wings.
[26] Described on page 247.

ly rounded, surface heavily impresso-punctate, this disappearing meso-distad, without hairs or well supplied with hairs, discoidal sectors longitudinal; veins invisible except in certain lights, except in portion of dextral tegmen concealed when at rest, which is subchitinous. Wings very large in porportion to body bulk, costal veins not clubbed, discoidal and median vein forming an elongate acute ellipse, crossed by numerous transverse veinlets, an irregular network of veinlets distad in area between the unbranched ulnar, anal and first branch of the axillary vein; appendicular field with basal line rounded obtuse-angulate, length nearly equal to width in males, length distinctly less than width in females, this area folding and curling into a tight roll when at rest; radiate field folding fanwise. Dorsal surface of male abdomen with median segment specialized. Cerci short, flattened dorsad, lateral margins complete. Male subgenital plate symmetrical, with similar, unspecialized styles. Female subgenital plate valvular. Limbs with femora unarmed except as follows: cephalic femora with ventro-cephalic margin supplied distad with minute, piliform but well separated spines, or lacking these, with a single elongate heavy distal spine; median and caudal femora with a similar distal spine on both ventral margins. Tarsi pilose ventrad, lacking pulvilli, caudal metatarsus as long as combined length of succeeding joints. Tarsal claws delicate, symmetrical, unspecialized; arolia absent.

Oulopteryx dascilloides[27] new species. Plate XV, figures 5, 6.

This species, though congeneric, differs in many respects from *O. meliponarum*, with which it is compared on page 247.

The blackish brown, usually coriaceous pronotum and tegmina and general contour strongly resemble certain species of Coleoptera.

Type: ♂; Pariacabo, French Guiana. [Paris Museum.]

In addition to the characters given in the generic description, we note the following. Size smaller, form not as elongate as in *meliponarum*. Head somewhat shorter than in that species, very slightly longer than broad. Interocular space three-quarters width between antennal sockets. Maxillary palpi shorter than in *meliponarum*. Pronotum smaller, discal boss stronger and giving the pronotum a decidedly less flattened appearance. Tegmina extending beyond cercal apices, decidedly coriaceous, sutural and costal margins rather strongly oblique to rounded apex in distal third. Wings with rolls of folded appendicular field lying obliquely. Median segment rather strongly impressed meso-proximad, with a short transverse ridge mesad on each side, the impressed area invaded by a blunt angulation meso-caudad, with a heavy tuft of agglutinated hairs springing from the depression in front of that point, directed cephalad. Supra-anal plate with length approxi-

[27] In allusion to the superficial resemblance shown by this species to members of the coleopterous genus *Dascillus*.

mately equal to one-third basal width, lateral margins weakly concave and convergent to broadly rounded median portion, except in a very small area mesad where a small rounded production occurs, the surface of this concave, the entire distal margin well supplied with elongate hairs. Concealed genitalia not visible in this specimen. Subgenital plate nearly symmetrical, the lateral margins convergent, the sinistral very feebly convex, then as feebly concave, the dextral as feebly concave to the style sockets, between these the distal margin is roughly broadly convex, weakly oblique in proximal portions, mesad truncate but when seen in caudal aspect as weakly obtuse-angulate ventrad, the angles formed all rounded. Styles similar, simple, straight, cylindrical, rounded at apex, each about two and one-half times as long as its width, slightly over one-quarter as long as the distance between the style bases. Limbs very slightly heavier and shorter than in *meliponarum*. Cephalic femora with ventro-cephalic margin supplied distad with a very few, minute, piliform spines, which are scarcely distinguishable, terminated by a single elongate distal spine. Caudal metatarsus equal to combined length of the succeeding tarsal joints.

General coloration shining blackish chestnut brown, paling to hazel along costal margin. Tegmina, when held against light, chestnut brown paling to hazel along costal margin. Wings transparent, almost colorless, veins buffy, costal veins distad opaque, ochraceous-buff. Dorsal surface of mesonotum, metanotum and abdomen buffy, the latter suffused with blackish chestnut brown laterad and in broad distal portion. Head shining blackish chestnut brown,[28] mouthparts and limbs mars brown, coxae and abdomen, except proximo-mesad where it is slightly paler, blackish chestnut brown.

Length of body 7.7, length of pronotum 2.2, width of pronotum 2.9, length of tegmen 7.1, width of tegmen 2.7, length of caudal tibia 2.4 mm.

The type is unique.

Latindia dohrniana Saussure and Zehntner.

1894. *Latindia dohrniana* Saussure and Zehntner, Biol. Cent.-Am., Orth., I, p. 111, pl. V, fig. 7. [♀, Guatemala.]

St. Jean du Maroni, French Guiana, 1 ♀.

Previously known from tropical Mexico to Panama, an additional female from Trinidad is before us.[29] The pronotal proportions of these two specimens are identical, length 1.8, width 2.05 mm.

Sphecophila polybiarum (Shelford)

1907. *Sphecophila polybiarum* Shelford, Trans. Ent. Soc. London, 1906, p. 518. [♂; Sainte Marie, Oyapock [River], French Guiana.]

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[28] The antennae are missing.

[29] Recorded by Bruner as *L. castanca* Brunner (Jour. N. Y. Ent. Soc., XIV, p. 143, (1906).), which name is very possibly a synonym, as Brunner's pronotal measurements for the female type from Balthazar, Granada, (length 1.5, width 1.3 mm.), alone disagree and may easily be incorrect.

Sainte Marie, lower Oyapock River, French Guiana, 1900, (F. Geay; in nest of wasp, *Polybia pygmaea* Fabricius), 1 ♂, 4 juv., topotypes, taken with type.

It would appear that fifteen specimens in all were secured from the same nest, eleven of them being adult males.

Holocompsa nitidula (Fabricius)

1781. *B[latta] nitidula* Fabricius, Spec. Ins., I, p. 345, [[♀], Surinam.]

Demerara, British Guiana, 1901, (R. J. Crew), 4 ♂, 4 ♀, [Hebard Cln.]

St. Georges, Oyapock River, French Guiana, 1 ♂.

OXYHALOINAE.

Chorisoneura lata Rehn.

1916. *Chorisoneura lata* Rehn, Trans. Am. Ent. Soc., XLII, p. 253, pl. XV, figs. 28 to 30. [♂; Pará, Brazil.]

Gourdonville, French Guiana, 1 ♀.

This specimen is more intensively colored than the type. In this genus, which includes a multitude of species, often very closely related, we believe the present association to be correct, though it is impossible to be certain without males from the same locality.

In the male type of *lata*, the head coloration is destroyed, traces of a paler band between the eyes and a pair of dark flecks alone being discernible. In the female at hand the head coloration is apparently as it would be in the type, had its coloration been retained. Head with occiput ochraceous-tawny, terminating in a straight line between the eyes, upon which are situated two slightly impressed dots of dark brown, below this is a band of buff which widens slightly laterad, in that portion having a larger impressed dot of dark brown on each side, below this band the face is pale ochraceous-tawny.

Compared with *C. panamae* Hebard, this cephalic marking is seen to differ principally in having the more widely separated pair of dots, the larger and the pale areas confined to a transverse band instead of spreading ventrad over the face.

Chorisoneura guianae new species. Plate XIV, figures 11 and 12.

This species is closely related to *C. lata* Rehn,[30] differing in its

[30] Referred to the Pellucida Group by Hebard, Mem. Am. Ent. Soc., No. 4, p. 127, (1920). In addition to the species assigned to that group, *C. poststriga* (Walker) also apparently belongs. From the description of that species it may be distinguished from the present by the dark face and differently colored tegmina.

very slightly smaller size, distinctive and unspotted cephalic marking, pronotum with disk proportionately smaller when compared with the ample lateral portions and tegmina with venation broadly pale in all portions, so that the small remaining darker areas give these organs a delicately tessellate appearance.

Type:♂; Bartica, British Guiana. April 14, 1913. (H. S. Parish.) [Acad. Nat. Sci. Phila., Type no. 537.]

Size rather large for the genus, form depressed, in outline elongate elliptico-ovoid. Head broad, decidedly depressed; from the dorsum practically the entire occiput and cephalic half of the eyes are seen to be exposed, occipital outline truncate, the eyes almost imperceptibly projecting beyond the interocular area; interocular space broad (.6 mm.), one and one-half times occipital ocular depth, about four-fifths as wide as space between antennal sockets. Maxillary palpi with third joint elongate and slender; fourth joint three-quarters as long as third; fifth joint slightly longer than fourth, moderately enlarged. Pronotum transverse elliptical, with a marked rectangulate tendency, due to the wide and strongly transverse cephalic and caudal margins, cephalic margin showing a trace of convexity only above the head, caudal margin showing a very feeble convexity, lateral margins broadly convex, rounding evenly into cephalic and caudal margins; greatest width mesad; disk with a shallow medio-longitudinal impression and a pair of brief oblique sulci laterad, very slightly but appreciably smaller in proportion to lateral portions than in *lata*; lateral portions weakly declivent cephalad, where the surfaces are very shallowly concave, weakly bossed over tegmina. Tegmina elongate, extending briefly beyond cercal bases, greatest width at proximal third, thence narrowing evenly to near the sharply rounded but acute apex; marginal field very broad; costal veins (17) with a number of false veinlets between, discoidal sectors (16) strongly oblique. Wings with intercalated triangle forming an angle of appreciably less than ninety degrees. Sixth abdominal tergite with a very shallow round depression mesad, rather thickly supplied with minute agglutinated hairs. Supra-anal plate damaged in this specimen. Subgenital plate with flattened bases of the shallowly inset styles occupying almost all of free margin; styles very elongate, nearly three times as long as basal width, broad at base, tapering to the lamellate and rather sharply rounded apices, unarmed on external surfaces. Between the styles the median portion of the plate is produced in a very slender, chitinous shaft, three-quarters as long as one of the styles, showing a very slight and even curvature caudad throughout its length and tapering to the aciculate apex. Limbs and their armament, tarsi, claws, pulvilli and arolia as characteristic of the genus.

Allotype: ♀; same data as type, except taken December 11, 1912. [Acad. Nat. Sci. Phila.]

Agrees closely with type. Tegmina slightly shorter. Interocular space slightly wider. Supra-anal plate triangularly produced, strongly notched at apex, this rounded emarginate, deeper than wide, the two sharply rounded portions thus formed with surfaces moderately convex, lateral margins feebly concave. Subgenital plate ample, narrow distal portion reflexed, longitudinally cleft mesad.

Head with vertex to point of least width between eyes auburn, the line of demarcation there sharp, weakly convex dorsad in male, transverse in female, face whitish buffy shading to ochraceous-buff ventrad. Antennae in males mummy brown in proximal fourth, thence much paler, buckthorn brown, in female pale buckthorn brown throughout. Pronotum with marginal portions transparent, very faintly tinged with ochraceous-buff; disk tawny, mesad with a pair of small, parallel, longitudinal markings of ochraceous-buff. In the female the disk is russet laterad, the area between and about these markings alone tawny. Tegmina transparent, marginal field and along costal margin very faintly tinged with ochraceous-buff, the veins and veinlets in the other portions (except the humeral trunk for a brief distance proximad, where it is ochraceous-tawny) all broadly defined in this color, the very small intervening areas in these portions weakly tinged with ochraceous-tawny, this giving the tegmina a delicately tessellate appearance. Wings transparent very faintly tinged with buff, except in proximal portion of costal veins (strongly tinged with prouts brown in this area in the intensively colored allotype) and about the intercalated triangle, where they are weakly tinged with ochraceous-tawny, the enlarged (distal) portions of the costal veins whitish. Limbs ochraceous-buff. Ventral surface pale orchraceous-buff, showing a whitish bloom.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Bartica, British Guiana, *type*	11.	2.2	3.5	9.8	3.
Cayenne, French Guiana, *paratype*	10.7	2.2	3.55	10.	3.15
♀					
Bartica, British Guiana, *allotype*	10.6	2.3	3.6	9.3	3.

In addition to the described pair, a paratypic male from Cayenne, French Guiana, property of the Paris Museum, has been examined.

Chorisoneura barticae new species. Plate XIV, figure 13.

This insect may be distinguished from the multitude of related species by the small size (tegminal length 8 mm. or less), the distinctively marked head, nearly unicolorous pronotum, which is obscurely paler mesad, unicolorous tegmina except for the paler margins and male styles, which are developed as foliaceous plates taper-

ing distad to their acute apices and less than twice as long as broad, between the bases of which the subgenital plate is triangularly produced and unarmed.

To the known Panamanian species it will be seen that nearest affinity is with *C. cabimae* Hebard, that species differing in the marking of the head, wider interocular space, very much more elongate fourth joint of maxillary palpi and differently shaped male styles.

Type: ♂; Bartica, British Guiana, January 10, 1913. [H. S. Parish.] [Acad. Nat. Sci. Phila. Type no. 5370.]

Size medium for the small species of the genus; form depressed, surface glabrous. Head with occiput largely exposed. Interocular space (.45 mm., in *cabimae* .55 mm.) two-thirds the width between the antennal sockets. Maxillary palpi with fifth joint slightly shorter than fourth, fourth joint approximately four-fifths as long as third. Pronotum transverse, subelliptical; greatest width meso-caudad; cephalic and caudal margins transverse, feebly convex; latero-cephalic angles distinctly more broadly rounded than latero-caudal angles. Tegmina surpassing apex of abdomen by about the pronotal length, strongly elongate lanceolate, with apex sharply rounded, distinctly more acute than in *cabimae*; discoidal vein with numerous branches, the more distal of which are subobsolete; discoidal sectors (9) oblique. Wings and venation very delicate; appendicular field nearly as long as broad, basal outline forming very slightly more than a right angle; costal veins moderately heavily clubbed distad. Dorsal surface of abdomen with sixth segment weakly specialized mesad, as characteristic of the genus. Supra-anal plate strongly transverse, very weakly triangularly produced. Subgenital plate with lateral portion of free margin weakly oblique, nearly transverse, straight to the two short styles, which are deeply inset, between these the subgenital plate is minutely triangularly produced and unarmed. Styles heavy, nearly twice as long as greatest width near base,[31] the lateral margins from that point to the small apical portion, which is formed by a folding over of the style, forming a small triangular apex, directed dorso-laterad. Limbs and their armament, pulvilli, tarsal claws and arolia as characteristic of genus.[32]

Allotype: ♀; same data as type, except taken on January 30, 1913. [Acad. Nat. Sci. Phila.]

Agrees closely with male, differing in the following features. Interocular space broader (.65 mm.). Tegmina slightly less elongate. Dorsal surface of abdomen not specialized. Supra-anal plate triangular and rather strongly produced, with lateral margins

[31] In the male paratype these styles are distinctly shorter than in the type, with contour, however, similar.

[32] Fully described, Mem. Am. Ent. Soc., No. 4, p. 135, (1920).

broadly concave to the narrowly bilobate apex, the area intervening between these lobes forming an angle as deep as its basal width, with lateral margins weakly concave. Subgenital plate scoop-shaped, with marginal convexity greatest latero-caudad, distal portion sharply reflexed, broad mesad, with a medio-longitudinal cleft, this reflexed portion narrowing rather strongly to opposite cercal bases, where it disappears.

Head with vertex to between ocellar areas ochraceous-tawny, there this area of coloration is terminated by a very fine, transverse line of mummy brown, below which the face is entirely pale ochraceous-buff and likewise opaque,[33] antennae and mouthparts weakly tinged with translucent ochraceous-buff. Pronotum with marginal portions transparent, faintly tinged with ochraceous-buff; disk ochraceous-tawny, in some examples paling mesad to ochraceous-buff tinged with ochraceous-tawny, this more extensive caudad. Tegmina transparent evenly and weakly tinged with ochraceous-buff. Wings transparent, with a very faint buffy tinge, this becoming stronger in the area of the costal veins and showing a very weak tawny suffusion about the intercalated triangle. Dorsal surface of abdomen ochraceous-buff, faintly tinged with ochraceous-tawny. Limbs ochraceous-buff. Ventral surface pale ochraceous-buff, in the best preserved specimens showing the same opaque whitish condition as found on the face.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Bartica, British Guiana, *type*	9.34	1.8	2.8	8.1	2.7
Bartica, British Guiana, *paratype*	8.	1.8	2.85	8.	2.7
♀					
Bartica, British Guiana, *allotype*	8.	1.85	2.9	7.8	2.8
Bartica, British Guiana, *paratype*	9.34	1.8	2.9	7.8	2.75
Demerara, British Guiana, *paratype*	34	1.8	2.85	7.8	2.75

Specimens Examined: 5; 2 males and 3 females.

Bartica, British Guiana, I, 10 to 30, 1913, (H. S. Parish), 2♂, 2♀, *type*, *allotype* and *paratypes*, [A. N. S. P.].

Demerara, British Guiana, 1901, (R. J. Crew,) 1♀,[35] [Hebard Cln.]

Section II. Southeastern Brazil.

This collection is of particular interest, due to the fact that it is

[33] Specimens of the genus, in drying, apparently often lose this whitish pigmentation, these areas in such becoming translucent weakly tinged with ochraceous-buff. In such specimens, however, the areas originally more strikingly defined are usually detected with little difficulty.

[34] Abdomen squeezed out, in life probably about 8 mm. in total length.

[35] Recorded by Rehn as *Chorisoneura gracilis* (Saussure), Proc. Acad. Nat. Sci. Phila., 1906, p. 271, (1906).

in large part from the vicinity of Rio de Janeiro, type locality of many of the older species described from South America.

As a result, the present study has aided greatly in clearing up the identity of a number of older names. Several of these are of great importance in that they represent genotypic species. Such are; *Neoblattella adspersicollis, Liosilpha pumicata, Phoraspis picta, Petasodes mouffeti, Monastria biguttata, Brachycola tuberculata* and *Parahormetica bilobata.*

The 155 specimens treated, represent 27 genera and 38 species, of which 3 genera and 9 species are new.

Among the new species described, *Dasyblatta thaumasia* from Pará, and *Oulopteryx meliponarum* from near Passa-Quatro, Minas Geraes, represent extremely unusual types. The latter species is of additional interest, in being the first Blattid known to be symbiotic with bees.

ECTOBIINAE.

Anaplecta bivittata Brunner.

1865. *A* [*naplecta*] *bivittata* Brunner, Nouv. Syst. Blatt., p. 63. [♀, Brazil.]

Tijuca, Rio de Janeiro, Brazil, 800 to 900 meters, 1 ♂.

Though in a poor state of preservation, the present specimen is seen to agree closely with a male, previously recorded by Rehn, from Pará, Brazil. The squarely truncate tegminal maculation is a striking feature of coloration in the species. Slightly darker transverse suffusions across the face, suggested in these specimens, may prove to be a more conspicuous feature of coloration in better preserved material. Length of body 5.6, length of tegmen 5.3 mm.

Anaplecta xanthopeltis new species. Plate IX, figures 1 and 2.

This insect appears to be closely related to *A. fusca* Shelford, described from a unique female from Cachabi, Ecuador. The present male differs from the description of that species in the larger size, pale head and pronotum and in features of wing venation.

In the present specimen the interval between the discoidal vein and its branch caudad[35] is wider and is crossed by three transverse veinlets, this area being very weakly defined distad, the branching

[35] In Shelford's description of *fusca* termed the "medio-discal" field, though the area so termed elsewhere and designated as the medio-discoidal field by us, is shown by that author's figure of *fusca* to be the area caudad of that to which he has referred.

of the axillary vein is regular, while the anal vein in the appendicular field curves strongly toward the caudad margin distad.

The male of *fusca* will probably show other differences of more diagnostic value than those of the wing venation.

Type: ♂; Rio Itaya, Peru.[37] February. [Paris Museum.]

Size small for the genus of very small species, form relatively moderately slender, coleopteroid. Head distinctly longer than broad, with no distinct ridge above ocellar areas, ocellar spots subobsolete[38] Pronotum almost perfectly oval, surface weakly convex. Tegmina comparatively narrow, rather strongly chitinous, venation inconspicuous, costal margin very feebly convex proximad, thence nearly straight to distal portion, where it is oblique and more markedly convex to the acute-angulate though bluntly rounded apex, this apex situated beyond the axis of the tegmen toward the sutural margin. Wings very elongate and narrow, over twice as long as greatest width, costal veins (five) straight and scarcely thickened distad, medio-discoidal area with two transverse veinlets, the more distal heavy and appearing as a gradual curvature of the discoidal vein to join the median vein, this veinlet sending three veinlets distad; appendicular field in length slightly over two-fifths that of remaining portion of wing, length equal to width. Supra-anal plate with free margin broadly convex, about twice as wide as long; dorsal surface with a delicate transverse ridge mesad, which bears mesad on its cephalic face a tuft of microscopic hairs, cephalad of which it is concave, the caudal margin of the preceding tergite being roundly emarginate about this concavity. Subgenital plate simple, bearing two very minute, short, simple, conical styles. Limbs and their armament, tarsal claws and arolia as characteristic of genus.

Head light ochraceous-tawny, suffused with mummy brown laterad above the clypeus, maxillary palpi dresden brown, with distal joints deepening to mummy brown. Antennae deep dresden brown. Pronotum with disk immaculate light ochraceous-tawny, lateral portions transparent, tinged with buff. Tegmina deep chestnut brown, except the narrow marginal field, which is transparent, tinged with buff. Wings tinged with mummy brown, this weak proximad, very heavy in distal portion of anterior field and anterior portion of radiate field. Ventral surface of abdomen buffy brown mesad, shading to prouts brown laterad. Limbs and cerci ochraceous-buff, the cephalic tibiae and tarsi weakly suffused with brown.

Length of body 5, length of pronotum 1.2, width of pronotum 1.6, length of tegmen 3.9, width of tegmen 1.3 mm.

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[37] We describe this species here, as it is one of the two new species in the Paris Museum collection from Peru, both of which are indeed representatives of the fauna of the upper Amazonian drainage.

[38] Possibly due to discoloration.

The type of this handsome, though plainly bicolored species, is unique.

DASYBLATTA[39] new genus

This genus is erected to include two anomalous species, *thaumasia*, described on page 225, and *chopardi*, described on page 257, apparently referable to the Group Blattellae, but exceptionally distinctive in being clothed with microscopic hairs and in having the intercalated triangle curled and tubuliform when at rest.[40]

The insect further shows decided similarity to some of the smaller species of the genus *Ischnoptera*, belonging to the Group Ischnopterae, in the general contour, and particularly that of the head and pronotum.

In linear position we place *Dasyblatta* after *Platylestes* and before *Chromatonotus*, no close relationship to any previously described genus, however, being indicated.

Genotype.—Dasyblatta thaumasia new species.

Generic Description. Based on the male sex. Size small, form slender, structure not as delicate as is usual in the Group, entire surface, when tegmina are closed, decidedly hairy. Interocular space rather broad to decidedly narrow; ocelli distinct, with flat surfaces of ocellar areas forming a rather sharp angle with the interocellar space. Eyes extending ventrad nearly to maxillary palpi. Maxillary palpi comparatively short, with fifth segment longest of all. Pronotum moderately convex, laterad decidedly so to the very narrowly concave lateral portions, disk with two broad but distinct sulcations mesad, which converge caudad; cephalic margin transverse, much broader caudal margin weakly convex, point of greatest width meso-caudad. Tegmina and wings fully developed. Tegmina hirsute, anal field very elongate, discoidal sectors longitudinal.[41] Wing with costal veins not enlarged, discoidal and unbranched median vein connected by numerous transverse veinlets; ulnar vein with (1) complete branch, showing numerous transverse veinlets and very numerous bases of these toward fold of the wing, intercalated triangle very broad and conspicuous, curling in a tube when the wings are at rest. Dorsal surface of abdomen unspecialized. Subgenital plate with a process sinistro-proximad, which lies outside of, and alongside, the cercal base. Limbs heavy for the group. Ventro-cephalic margin of cephalic femora armed with a

[39] From δασύ-βλαττα = A hairy cochroach.

[40] In these features only, agreement with the genus *Oulopteryx*, described in the present paper and assigned to the Corydiinae, is shown. The ensemble of characters, however, leads us to believe that the present genus is a member of the Pseudomopinae.

[41] In the specimen described as *D. chopardi* on page 257, the discoidal sectors of the dextral tegmen toward the sutural margin are, however, moderately oblique.

few well-spaced, heavy spines, succeeded by a row of (15–17) minute chaetiform spines, terminating in three heavy spines, very elongate, in increasing ratio distad. Ventro-caudal margin of cephalic femora armed with (1 median, 1 subdistal and 1 distal) heavy, elongate spines. Other femoral margins well supplied with heavy elongate spines. Four proximal tarsal joints supplied distad with minute, simple pulvilli. Tarsal claws simple, symmetrical. Very small arolia present.

Dasyblatta thaumasia new species. Plate IX, figures 9, 10 and 11.

The many astonishing characters of this insect are discussed in the generic treatment. The male sex only is known.

Type: ♂; Pará, Pará, Brazil. (C. F. Baker.) [Acad. Nat. Sci. Phila., Type no. 5377.]

In addition to the characters given in the generic description, the following are noteworthy. Interocular space slightly over one-quarter occipital ocular depth, about one-third width between antennal sockets; impressed punctae, the sockets of hairs, particularly conspicuous in the inter-ocular-ocellar area. Third joint of maxillary palpi slightly shorter than the large fifth joint, slightly longer than the fourth joint. The hirsute tegmina have, to the naked eye, a coriaceous appearance, due to the fact that the hairs are not visible except under the microscope; area of dextral tegmen, concealed when at rest, without hairs; discoidal sectors (8 and 9) longitudinal. Wings with distal portion of anterior margin hirsute. Metanotum with a minute subchitinous projection mesad on the caudal margin, which is twice as long as broad; large and very decided rounded ridges diverge from this across the median segment, terminating before the latero-caudal portions of that segment. Seven proximal tergites with latero-caudal angles rectangulate and sharply rounded. Eighth tergite narrowly visible, normal dextrad but with sinistral folded portion (including the latero-caudal angle) strongly produced beside the super-anal plate to near the cercal base. Supra-anal plate two-thirds as long as proximal width, weakly chitinous in distal portion; lateral margins straight, parallel, to bases of cerci, straight and strongly oblique to within these, the remaining portion roundly produced, showing a weak indication of a symmetrical, trapezoidal contour. Springing from the sinistral base of the subgenital plate and from within the production of the eighth tergite, a straight, cylindrical, chitinous process extends caudad along the outer margin of the cercus nearly as far as does the supra-anal plate, this process six times as long as thick, with apex moderately enlarged and bearing a cluster of elongate, straight, chaetiform spines. Subgenital plate with all but base of sinistral portion curled upward to just within and beneath sinistral cercus, bearing on its internal surface a stout conical projection which terminates in several adjacent, very elongate chaetiform spines, directed mesad, the margin of this portion weakly curved,

rounding at its extremity, then declivent to the not upcurled median portion of the plate, the median section of the margin undulate, bearing in its median depression a small, cylindrical process (sinistral style) slightly longer than wide, directed dorsad and armed with two sharp, slender spines, which curve weakly sinistrad; bearing in its dextral depression a much more elongate process (dextral style) which is sinuous, directed dorso-mesad and terminating in a sharp, slender spine; beyond the dextral, portion of the plate is strongly curled upward and inward, overhanging the dextral style and folded beneath the cercal base, its margin broadly convex.

Head with occiput to above ocelli auburn, ocelli light buff; remaining portions, including proximal antennal joints and palpi, ochraceous-buff with a tawny tinge, with twin weak suffusions of auburn between the antennal sockets. Remaining portions of antennae dresden brown. Pronotum cinnamon brown with a very faintly paler, subobsolete medio-longitudinal line and flecks, lateral portions very narrowly ochraceous-buff with a tinge of buckthorn brown. Tegmina translucent buckthorn brown, very brief marginal field ochraceous-buff with a tinge of buckthorn brown, humeral trunk and between humeral and very brief mediastine vein, cinnamon-brown for a very short distance. Wings transparent, faintly tinged with brown, except in area of costal veins, where they are heavily tinged with dresden brown. Dorsal surface of abdomen buckthorn brown, mottled with cinnamon brown. Limbs pale orange-yellow, ventral surface of abdomen ochraceous-buff tinged with orange.

Length of body 10.8, length of pronotum 2.7, width of pronotum 3.3, length of tegmen 10.9, width of tegmen 3.3, length of caudal tibia 4.2, length of caudal metatarsus 1.9 mm.

This diminutive and commonplace looking insect is one of the most highly specialized and distinctive forms of the Blattidae known to us. The type is unique.

Supella supellectilium (Serville)

1839. *Blatta supellectilium* Serville Hist. Nat. Ins., Orth., p. 114. [Mauritius.]

Bahia, Brazil, I ♂, I ♀.

Neoblattella janeirae new species. Plate IX, figures 17, 18 and 19.

Though showing the general structure and color pattern of several of the larger groups of this genus, this species differs from all others known to us in the armament of the cephalic femora. The ventro-cephalic margin of these members is armed with a row of heavy spines which decrease suddenly in size and length mesad, those distad being very minute and closely placed, but too heavy to be termed piliform. This is seen to agree more closely with the type

termed "A," than with type "B," the latter the characteristic armament for the other species of *Neoblattella*.

We do not feel warranted in considering this species generically distinct solely on this condition; in numerous other characters *janeirae* shows much closer affinity to the Conspersa Group than to the genotypic Adspersicollis and other Groups of the genus.

The very narrow interocular space and symmetrically highly specialized male subgenital plate constitute particularly distinctive features. The proportionately decided amplitude of the organs of flight is only exceeded in males of *N. carrikeri* Hebard, of the species at hand.

Though simply and not strikingly colored, this is one of the most interesting species of the genus, due to the unusual armament of the cephalic femora and remarkable specialization of the male supra-anal plate.

Type: ♂; Tijuca, Rio de Janeiro, Brazil. Elevation 500 to 1000 meters. May. [Paris Museum.]

Size medium for the genus, form moderately slender. Inter-ocular space comparatively narrow, one-third that between the antennal sockets. Ocellar spots distinct, their surfaces oblique to, but rounding smoothly into, the flattened inter-ocular-ocellar area. Maxillary palpi elongate. Pronotum with surface very weakly convex, greatest width distinctly caudad of median point, caudal margin showing an exceedingly broad and rounded, feeble obtuse-angulate production. Tegmina delicate and elongate with (10 sinistral, 11 dextral) longitudinal discoidal sectors; cross-veinlets distinct, particularly in distal portion, where they are darkened. Wings with mediastine vein and (7) proximal costal veins showing elongate thickened distal portions, ulnar vein with (6)[42] complete branches, intercalated triangle well developed, its width over one-half its length. Dorsal surface of abdomen without distinct specialization, but with meso-caudal section of sixth tergite sub-chitinous in an irregularly triangular area, extending over half the distance to base of the tergite, the sides of which area are concave. Supra-anal plate two-fifths as long as basal width, very bluntly triangularly produced, with apex broadly sub-bilobate and lateral margins showing very broad and feeble concavity opposite the cercal bases. Concealed genitalia hidden. Subgenital plate ample, symmetrical, very deeply cleft on each side, the lateral portions thus separated, nearly vertical, elongate and very slenderly triangular plates curling outward to their blunt, rounded apices, which extend slightly further caudad than the median production

[42] Two of these branches again divide in the type.

of the plate; that portion weakly chitinous, roundly produced, leaving a very deep, narrow cleft on each side between it and the lateral portions, showing a blunt but decided medio-longitudinal carina extending to its small apical portion, which portion is suddenly directed cephalad, its surface flat, its lateral margins cutting in at the base so that, with the lateral margins of the basal portion, very small but moderately deep concavities are formed. From the bases of the very deep lateral clefts of the subgenital plate spring similar, simple, elongate, straight and nearly cylindrical styles, which, lying in these clefts between the median portion and the lateral portions, extend half the distance to the apices of the lateral portions of the plate, each about five times as long as its proximal width. Cephalic femora with ventro-cephalic margin armed with (4) large, elongate, moderately heavy, well-spaced spines, succeeded by a row of (18) very minute but moderately stout spinulae, terminated by three[43] large, moderately heavy spines, elongate in increasing ratio distad; ventro-caudal margin armed with (3 and 1 distal) spines. Other femoral margins armed with spines, as characteristic of the genus. Caudal metatarsus very elongate and slender, nearly twice as long as the combined length of the succeeding tarsal joints. Pulvilli on four proximal tarsal joints small, acute-angulate produced. Tarsal claws symmetrical, the moderately well-developed flange margined with very minute teeth. Arolia between the tarsal claws moderately-well developed.

General coloration buckthorn brown. Head with occiput ochraceous-buff, with suffused vertical streaks of prouts brown; a broad band of prouts brown between the eyes; ocelli and inter-ocular-ocellar area ochraceous-buff, this extending over face, but weaker and more embrowned ventrad, a small fleck of prouts brown below each ocellar spot, four similar flecks below which are placed in a transverse line showing convexity ventrad, area below antennal sockets suffused with prouts brown, with a fleck of prouts brown on each side meso-ventrad. Antennae clay color. Pronotum transparent, faintly tinged with brown laterad; disk ochraceous-buff, heavily though finely pictured with lines and dots of prouts brown. Tegmina transparent, faintly tinged with brown, except distad and in area of dextral tegmen concealed when at rest where the tinge is darker, mummy brown, this very heavy and blackish

[43] A correction for this character for *Neoblattella*, as given by us in our key, is necessary, (Mem. Am. Ent. Soc., No. 4, p. 28, (1921).). We find that three heavier distal spines occur in all of the species of the genus before us excepting *eudromielloides*, *berlandi* and the numerous species of the Impar Group, in which but two heavier distal spines are shown. In some species virtually an intermediate condition is reached, the first of the three distal spines being sufficiently reduced so that it would be counted by some and regarded as one of the series of smaller spines by others. Of the Group Blattellae, *Neoblattella* is much the largest American genus and it is to be expected that much more decided differences will be found between some of its component groups and species than occur in any of the related genera.

in the inner portion of the area concealed when at rest, the distal veins and veinlets more strongly defined in mummy brown. Wings transparent, faintly tinged with mummy brown, this heavier distad and in area of costal veins; clubbed portions of costal veins opaque, mummy brown. Mesonotum and metanotum prouts brown with a medio-longitudinal line of whitish, which on each segment expands caudad. Dorsal surface of abdomen clear cinnamon-buff, each segment very heavily suffused with mummy brown lateral. Underparts clear cinnamon-buff, suffused with prouts brown laterad; abdomen with flecks of this color laterad and with a medio-longitudinal suffusion of blackish brown, which expands caudad to include the entire subgenital plate.

Length of body 13.8, length of pronotum 3.3, width of pronotum 4.8, length of tegmen 16.2, width of tegmen 4.9, length of wing 14.8, width of wing 8.7, width of intercalated triangle 1.8, length of tibia 6.2, length of caudal metatarsus 2.9 mm.

The type of this remarkable species is unique.

Neoblattella platystylata new species. Plate IX, figures 21, 22 and 23; Plate X, figure 1.

Closely related to *N. conspersa* (Brunner), the present species agrees in general structure, minute and scattered tegminal dots and general character of specialization of the subgenital plate in both sexes, (figured for *conspersa*, plate IX, figure 20).

The styles of the male subgenital plate are much heavier, decidedly broader than long, while the production of the meso-caudal portion of that plate is much more sudden and pronounced, forming there a stout projection.

The female subgenital plate is specialized very much as described for *conspersa* on page 261; the inner projections, however, usually produced in but one or two stout spines.

Though the dark marking of the ventral surface of the abdomen is carried out broadly to the extremity of the subgenital plate in all of the males, the majority of the females have this marking narrower and in individuals of extreme recessive coloration it is greatly reduced, not reaching as far as the base of the subgenital plate.

As in *conspersa*, the number and intensity of the dark scattered tegminal dots is individually variable, as is the usually conspicuous pale band below the dark interocular band on the head.

Type: ♂; Igarapé-Assú, Pará, Brazil. (H. S. Parish.) [Acad. Nat. Sci. Phila., Type no. 5376.]

Size medium small for the genus, slightly larger than the average for *conspersa* from the same region, form moderately slender. In-

terocular space wide, slightly narrower than that between the antennal sockets. Ocellar spots distinct. Maxillary palpi elongate, fourth joint four-fifths as long as third, fifth very slightly shorter than fourth. Pronotum with surface very weakly convex, greatest width slightly caudad of mesal point. Tegmina very delicate, with (9) longitudinal discoidal sectors, veins with scattered dark dots, representing the bases of microscopic hairs; cross-veinlets moderately developed, moderately darkened in distal portions. Wings with costal veins heavily clubbed distad, ulnar vein with (3) complete branches, intercalated triangle small. Abdomen with dorsal surface unspecialized. Supra-anal plate weakly triangularly produced, about one-third as long as proximal width with apex broadly rounded. Concealed genitalia including a process terminating in a broad whorl, its surface covered with very closely placed. minute spines.[44] Subgenital plate convex and curled dorsad on each side, but broadly and shallowly concave in large median portion, distal margin approximately transverse, on each side produced in short, very broad, styles which fuse with the plate at their bases; between these the plate is produced mesad a nearly equal distance, the sides of this portion slanting upward and the free margins concave oblique to the apex; due to the contour of this production, its apex appears truncate in ventral aspect, but V-emarginate in caudal aspect. Each of the styles is nearly twice as broad as its greatest length, the greatest length being on the internal margin, the roundly truncate, broad apex being in consequence oblique to the caudal margin of the subgenital plate. The apices of these styles are moderately thickly supplied with minute but stout spines, directed caudad and curving ventrad. Limbs, their armament, pulvilli,arolia and tarsal claws as characteristic of the genus. The first three of the five or six microscopic teeth on the margin of the flange of the tarsal claws are relatively decided.

Allotype: ♀ ; same date as type. [Acad. Nat. Sci. Phila.]

Agrees closely with male in size and development of organs of flight, differing as follows. Supra-anal plate with free margin more convex and roundly notched at the apex. Subgenital plate short, scoop-shaped, bearing on each side just within the cerci a small lamellate projection, with truncate apex armed with (5 to 7 in the series) closely placed, chitinous spines, resembling the teeth of a comb; within at the base of this process is another projection[45] the

[44] The concealed genitalia in the species of this group appear to be very delicate. In the great majority of specimens before us these parts are mashed, and in none do they appear to have dried in a normal position.

[45] The series shows that these processes are variable in contour, as well as occasionally having more teeth and in themselves a very weak character to separate this sex of *platystylata* from the very similar females of *conspersa*. An average lesser number of teeth on the inner processes of females of *platystylata* from Pará has appeared to us to be a guide to distinguish them from females of *conspersa* from that locality. It is evident that females of the species of the present Group will be found as difficult to separate as those of the Impar Group of the genus; determination of female material, without males from the same locality, being often out of the question.

sinistral of these bearing a stout chitinous spine, the dextral armed with two spines.

General coloration buckthorn brown. Head of this color, a broad transverse band of cinnamon brown between the eyes, sharply delimited ventrad by a much narrower transverse band of cinnamon-buff between and including the ocellar spots, below this with a narrow marginal suffusion of cinnamon brown, which laterad runs down beside the antennal sockets, and another transverse suffusion of the same above the clypeus.[46] Pronotum with disk weak ochraceous-tawny, with the characteristic fine picturing of cinnamon brown, this sometimes very weak, occasionally much suffused; lateral portions transparent, very faintly tinged with brownish. Tegmina transparent, very faintly tinged with brownish, particularly along costal margin, the veins with minute scattered dots of prouts brown and with distal cross-veinlets slightly darkened except in recessive examples, where even the dots are considerably reduced in number. Underparts and limbs buckthorn brown, with flecks of prouts brown on the latter at bases of spines. Ventral surface of abdomen with a broad medio-longitudinal blackish band, broad on subgenital plate of male, narrow or failing to reach this portion in female.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Bartica, British Guiana (5)	10.7–11.3	2.6–2.8	3.2–3.4	10.7–11.3	3.2–3.3
St. Jean du Maroni, French Guiana (2)	9.2–10.5	2.7–2.8	3.4–3.6	11–11.3	3.2–3.3
Igarapé-Assu, Pará, Brazil, *type*	10.7	2.7	3.5	11.3	3.3
Igarapé-Assu, Pará, Brazil, *paratypes* (9)	9.3–11	2.4–2.8	3.3–3.8	10.7–12	3.1–3.7
♀					
Bartica, British Guiana (3)	10–10.2	2.8–2.8	3.7–3.8	10.9–11	3.2–3.2
St. Jean du Maroni, French Guiana	9.4	2.6	3.4	10.7	3.1
Igarapé-Assu, Pará, Brazil, *allotype*	10.	2.7	3.6	10.9	3.2
Igarapé-Assu, Pará, Brazil, *paratypes* (12)	9.6–11	2.7–3	3.3–3.8	10.8–11.7	3.2–3.6

These individuals are exceedingly delicate in structure, the manner in which the abdomen has dried having a marked effect upon the body length of the material preserved.

[46] These markings are heavier in intensive examples. As in *conspersa*, however, the interocellar pale band is always conspicuous except in discolored specimens.

Specimens Examined: 37; 18 males, 18 females, 1 immature individual.

Bartica, British Guiana, XII, 19, 1912 to III, 15, 1913, (H. S. Parish), 5♂, 3♀, [A. N. S. P.].

St. Jean du Maroni, French Guiana, IV and V, 2♂, 1♀, 1 small juv.

Charvein, French Guiana, 1 ♀.

Igarapé-Assú, Pará, Brazil, 1, 17 to 11, 6, 1912, (H. S. Parish,) 11 ♂, 13 ♀. *type*, *allotype* and *paratypes*, [A. N. S. P.].

Neoblattella adspersicollis (Stål)

1861. *Blatta adspersicollis* (Stål), Kongl. Svenska Freg. Eugenie's Resa, Zool., I, p. 308. [♂; Rio de Janeiro, [Brazil].]

Bahia, Brazil, 1 ♀.

Tijuca, Rio de Janerio, Brazil, 600 to 900 meters, 1 ♂, 1 ♀, 1 juv.

The specimens from Rio and Bahia show the dark flecks on the face, arranged in nearly transverse lines, as described by Stål; the others have these markings very weak, indicated by fewer and faint suffusions.

The considerable variation in tegminal length is shown by the following measurements (in millimeters).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
La Forestière, French Guiana	---	4.8	6.3	20.5	5.9
Pará, Brazil	15.3	4.6	6.3	18.8	5.4
Rio de Janeiro, Brazil	15.3	4.7	6.1	15.7	5.1
♀					
Trinidad, British West Indies	15.2	4.4	5.9	17.8	5.1
Bahia, Brazil	13	4.4	5.9	16	4.7
Rio de Janeiro, Brazil	16	4.8	6	14.4	5

Neoblattella eudromielloides new species. Plate X, figures 2, 3 and 4.

This handsome little insect is closely related to *N. berlandi*, described on page 234, differing in the smaller size, paler head, broader interocular space, pronotum with medio-longitudinal portion nearly immaculate, tegmina with proximal portion of anal sulcus as heavily suffused as costal marginal area toward the discoidal vein and male subgenital plate which, though similar in type of specialization, differs strikingly in the deep concavity of the lateral margins and much smaller cucullate areas protecting the spines which replace the usual cylindrical styles.

These species, with *N. fasciata* (Brunner), from a group which we

designate as the Berlandi Group, distinguished by their comparatively graceful structure and strikingly bicolored tegmina.[47]

The superficial resemblance of this insect to *Eudromiella bicolorata* Hebard is striking; closer examination, however, showing the great differences between these species.

Type: ♂; Passa-Quatro, Rio Las Piedras, Minas Geraes, Brazil. Elevation 1000 meters. [Paris Museum.]

Size small and form slender for the genus. Eyes large, interocular space nearly two-thirds that between the antennal sockets. Ocellar spots not large but distinct, these and the maxillary palpi much as in *berlandi*. Pronotum much as in that species, but showing latero-cephalic as well as weaker latero-caudal shallow depressions. Tegmina and wings fully developed, extending well beyond cercal apices. Tegmina with (6 and 7) longitudinal discoidal sectors. Wings with clubbed apices of costal veins elongate and heavy, ulnar vein with (5) complete branches, intercalated triangle distinct, width one-half length. Dorsal surface of abdomen unspecialized, latero-caudal angles very bluntly rounded. Supra-anal plate transverse, one-third as long as proximal width, feebly obtuse-angulate produced, but with apex moderately bilobate. Subgenital plate nearly symmetrical;[48] lateral portions briefly produced, with straight margins, then suddenly emarginate for an equal distance, forming a projection which is less than rectangulate sinistrad, rectangulate dextrad; from these points the plate is again produced and shallowly curled upward, the margins hardly convergent, feebly concave to the broad, transverse apex, the lateral emarginations thus formed being nearly rectangulate and feebly rounded. The lateral portions are thickened and more strongly curled at the latero-caudal angles, thus forming a minute rounded cone, the open base of which is caudad and from within which, springing from its base, on each side, project caudad two minute, strongly curved spines, the apices of which reach the caudal margin. Limb armament, pulvilli, arolia and tarsal claws as given for *berlandi*.

Surface shining. Head clay color, the vertex approaching cinnamon-buff, with a very broad interocular band of bister, ocelli buffy, below are three broken bands of bister on the face; the first two each formed by two transverse suffusions which are connected laterad along the antennal sockets, the third formed by four suffusions arranged in a line which is strongly convex ventrad. Pronotum translucent, tinged with cinnamon-buff laterad, with two broad blackish prouts brown longitudinal bands which are separ-

[47] From the description of *Phyllodromia minor* Brunner, it appears probable that that species is either a member of the present group, or of the genus *Eudromiella*.

[48] The dextral emargination is slightly deeper than the sinistral.

ated by a brief distance at the cephalic margin, diverging moderately caudad; median area between these ochraceous-buff with two microscopic flecks of prouts brown caudad. Tegmina translucent, tinged with cinnamon-buff in proximal portions and just beyond discoidal vein in entire costal marginal area, from there to discoidal vein suffused with mummy brown, anal sulcus also broadly suffused with mummy brown, this narrowing and becoming subobsolete distad, discoidal field weakly tinged with dresden brown in all but proximal portion. Wings transparent, moderately heavily tinged with mummy brown; the narrow area of the enlarged portions of the costal veins, which is broader than in *berlandi*, light ochraceous-buff. Dorsal surface of abdomen ochraceous-buff, with a weak mottled suffusion of prouts brown. Cerci light ochraceous-buff, the distal joints flecked with black. Ventral surface and limbs light ochraceous-buff, the abdomen with weak brownish suffusions and an impressed fleck of prouts brown laterad on each of the larger segments. Limbs flecked with prouts brown at the bases of the spines, these flecks heavy on the tibiae.

Length of body 10.7, length of pronotum 2.3, width of pronotum 3, length of tegmen 11, width of tegmen 3.2 mm.

The type is unique.

Neoblattella berlandi new species. Plate X, figures 5, 6 and 7.

This species, like *N. eudromielloides* described on page 232 and *N. fasciata* (Brunner), has the tegmina distinctly bicolored

Nearest relationship is with *eudromielloides*, under which species the two are compared.

Type: ♂; Upper basin of Amazon River, on frontier between Peru and Bolivia.[49] (From Captain Mailles.) [Paris Museum.]

Size medium small and form slender for the genus. Eyes prominent, interocular space slightly more than half width between antennal sockets, ocellar spots weakly indicated but flattened surfaces of these areas oblique, rounding into the intervening flattened area; lateral margins of face subparallel to clypeal suture. Maxillary palpi very slender and elongate, the fourth joint gradually widening distad, fifth joint three-fifths as long as fourth. Pronotum moderately convex to lateral portions, showing a pair of shallow but distinct latero-caudal depressions, caudal margin very broadly convex, showing a very feeble tendency toward an obtuse-angulation. Tegmina and wings fully developed, extending well beyond cercal apices. Tegmina with (9) longitudinal discoidal sectors. Wings with clubbed distal portions of (13) costal veins elongate and heavy; discoidal vein with (6) complete branches; intercalated triangle distinct, width equal to one-half

[49] We describe this species here, as it is one of the two new species in the Paris Museum collection from Peru, both of which are indeed representatives of the fauna of the upper Amazon drainage.

its length. Dorsal surface of abdomen unspecialized, latero-caudal angles very bluntly rounded. Supra-anal plate simple, transverse, curled ventrad, about half as long as width between cerci, free margin concave about cerci, broadly convex in portion between these. Subgenital plate symmetrical, lateral margins broadly convex and forming a weakly defined obtuse-angulation beneath cerci, convergent one-quarter the distance between the cerci on each side, there sharply but briefly emarginate and at these points curled inward, forming a short cone, the open base of which is caudad and within which, springing from the extremities of the median section of the caudal margin, project caudad on each side, two minute, slightly curved spines; median section of caudal margin transverse, subchitinous. Ventro-cephalic margin of cephalic femora armed with a row of spines which decrease gradually in size distad, terminating in two elongate spines, of which the more distal is the longer. Limb armament, pulvilli, tarsal claws and arolia as characteristic of the genus. Teeth of flange on tarsal claws well developed, the last tooth half as large as the point of the claw.

Surface shining. Head with vertex blackish brown to ocellar areas, there with a broad transverse band of ochraceous-buff, margined ventrad by a band of blackish brown which is nearly as broad, eyes hazel, antennae and remaining portions of face translucent clay color, the latter with two interrupted bands of blackish brown. Pronotum translucent, tinged with cinnamon-buff laterad, with two broad blackish longitudinal bands which fuse at the cephalic margin and diverge caudad, area between these clay color, with a longitudinal heavily suffused streak and two lateral dots of blackish brown and a dot of cinnamon-buff cephalad. Tegmina translucent, tinged with cinnamon-buff proximad in anal field and beyond to first branch of median vein and also from just beyond discoidal vein in entire costal marginal area, from there to discoidal vein suffused with mummy brown and in entire discoidal field suffused with dresden brown as is the anal sulcus. Wings transparent, rather heavily tinged with mummy brown, the narrow area of the enlarged portion of the costal veins light ochraceous-buff. Dorsal surface of abdomen prouts brown, deepening to mummy brown distad. Cerci dresden brown, tinged with mummy brown proximad. Ventral surface of abdomen dresden brown, maculate with mummy brown. Limbs and spines buckthorn brown, cephalic femora suffused dorsad and along ventro-caudal margin with mummy brown, tibiae with blotches of mummy brown at base of each dorsal spine.

Length of body 11.5, length of pronotum 2.7, width of pronotum 3.3, length of tegmen 12.1, width of tegmen 3.3 mm.

The type is unique.

LIOSILPHA Stål.

1874. *Liosilpha* Stål, Bihang till K. Svensk. Vet.-Akad. Handl., Band 2, No. 13, p. 10.

This genus, erected to include *Blatta pumicata* Stål, *adspersicollis* Stål[50] and *dilatata* Saussure,[51] was restricted to the first species by Kirby's genotypic designation in 1904[52] and briefly diagnosed by Shelford in 1911[53].

A specimen of the genotype now before us, enables us to place the genus definitely as an aberrant member of the Group Blattellae, its broad form and moderately reduced organs of flight giving a rather close general resemblance to the actually very widely separated Old World genus *Allacta*.[54]

We find *Liosilpha* to be a distinctive genus, showing no close relationships, but best placed on linear arrangement after *Blattella* Caudell. In heaviness of limb armament, convergence toward the normal in the Blattinae is shown, but the ensemble of characters clearly demonstrates the proper assignment to be that indicated above.

The following generic characters are shown by the female before us. Size medium large for the group, form very broad, structure not as delicate as is usual in the group. Interocular space broad (slightly narrower than that between the antennal sockets), ocellar spots ample but weakly defined. Lateral margins of cheeks weakly convergent ventrad. Maxillary palpi moderately elongate, (fourth joint intermediate in length between third and fifth, the latter with greatest width mesad). Pronotum broad, weakly convex, becoming decidedly convex laterad, caudal margin broadly truncate. Tegmina showing some reduction (extending nearly to the cercal apices in the specimen at hand), moderately corneous, except in area of dextral tegmen concealed when at rest, with veins not distinguishable unless held up to the light, anal sulcus finely impressed, delimiting the elongate-pyriform anal field, discoidal sectors (6 to 8) longitudinal.[55] Wings showing moderate reduction, the venation slightly irregular, (8) costal veins weakly clubbed, median vein (once or twice) forked, ulnar vein with (2[56]) complete branches, intercalated triangle very weakly developed. Supra-anal plate with apex rather deeply V-emarginate. Subgenital plate simple, short. Cephalic femora with ventro-cephalic margin armed with

[50] Genotype of *Neoblattella*.
[51] Belonging to the genus *Latiblattella*.
[52] Syn. Cat. Orth., I, p. 96.
[53] Ent. Mo. Mag., (2), XXII, p. 156.
[54] Our statement in 1907, that we did not believe this species to be a member of this group, was due to the fact that, without material for study, the characters as far as described seemed to indicate other association.
[55] We are at a loss to explain Shelford's characterization of these veins as oblique. He apparently had material of *pumicata* before him, as his comments on the genus agree in all other respects.
[56] One of these again branches.

a series of decidedly heavy, elongate spines, which gradually decrease in length distad, terminating in spines which are elongate in increasing ratio distad; ventro-caudal margin in distal half with (3 and 1 distal) heavy, elongate spines. Other femora with ventral margins armed with numerous heavy, elongate spines, and with very elongate genicular spines. Four proximal tarsal joints supplied with large pulvilli. Large arolia present between the simple, very weakly asymmetrical tarsal claws,

Liosilpha pumicata (Stål) Plate X, figures 9 and 10.

1860. *Blatta pumicata* Stål, Kongl. Svenska Freg. Eugenie's Resa, Zool., I, p. 309. [♂; Rio de Janeiro, [Brazil].]

Tijuca, Rio de Janeiro, Brazil, 1 ♀, [Hebard Cln.].

This specimen has the dorsal surface shining, clay color, except for the lateral portions of the pronotum and marginal fields of the tegmina, which are transparent, tinged with cinnamon-buff. The dorsal surface of the abdomen is suffused with bister laterad and distad, leaving the lateral margins of the wider tergites cinnamon-buff. The cerci and limbs are cinnamon-buff, the latter with very small flecks of brown at the spine bases. The ventral surface of the abdomen is more narrowly suffused with bister laterad, with a large pale marginal spot on each sternite, the subgenital plate bister proximo-laterad and opposite the cerci, these latter suffusions extending mesad and connecting, but very weak in median portion.

Length of body 12, length of pronotum 4.3, width of pronotum 5.7, length of tegmen 10.8, width of tegmen 4, length of caudal femur 5.2 mm.

LITOBLATTA new genus.

This genus is erected to include the single species, "*Ischnoptera*" *brasiliensis* of Brunner.

The males differ from those of *Ischnoptera* in being of a more delicate structure, wings with area between discoidal vein and anterior margin broader, unspecialized dorsal surface of abdomen, transverse supra-anal plate and cephalic femora with spines not distinctly biseriate.

Females differ in having lobiform, lateral tegmina, sixth tergite bluntly triangularly produced over the similarly produced supra-anal plate and almost completely concealing the latter and cephalic femora with spines even less appreciably biseriate than in males.

The production caudad of a tergite, which almost entirely conceals the supra-anal plate in the female sex, is a feature unknown to us for any other species of the American Pseudomopinae.

In linear arrangement we place this genus before *Symploce* Hebard,

as the first of the known genera of the Ischnopterae having the cephalic femoral spine armament of the uniseriate type.

Generic Description. Structure of males very delicate, of females strongly chitinous. Head elongate, ocelli distinct; flat surfaces of ocellar areas forming a rather sharp angle with the interocellar space in males, this area much reduced and less distinctly defined in females. Pronotum of male moderatly convex, with oblique sulci present and caudal margin very weakly and broadly convex; of female more decidedly and evenly convex, with caudal margin truncate and showing scarcely any convexity. Tegmina of male fully developed, with discoidal sectors weakly radiating; of female represented by coriaceous lateral pads. Wings of male with area between discoidal vein and anterior margin moderately broad; mediastine vein extending more than half the distance to apex of wing, from which spring a number of the costal veins, none of the costal veins enlarged distad; discoidal vein branching, the forks dividing toward apex of wing; ulnar vein almost straight, with incomplete and complete branches; intercalated triangle small and inconspicuous. Wings absent in female. Dorsal surface of male abdomen unspecialized. Supra-anal plate of male transverse. Female with sixth tergite (Pl. X, fig. 17A) bluntly triangularly prooduced over the similarly produced supra-anal plate (Pl. X, fig. 17B) and almost completeley concaling the latter. Cephalic femora with ventro-cephalic margin armed with heavy elongate spines, which decrease strongly but irregularly in size distad,[57] terminating in three heavy and elongate spines, elongate in increasing ratio distad. Very small distal pulvilli present on four proximal tarsal joints in males, absent in females. Small arolia present between the elongate, slender, simple, symmetrical tarsal claws.

Litoblatta brasiliensis (Brunner) Plate X, figures 14, 15, 16 and 17.

1865. *I[schnoptera] brasiliensis* Brunner, Nouv. Syst. Blatt., p. 130, pl. III, fig. 12. [♂, Brazil.]

1897. *L[oboptera] laurenziana* Giglio-Tos, Bull. Mus. Zool. Anat. comp. Univ. Torino, XII, No. 302, p. 2. [♀; San Lorenzo, Jujuy and Tala. Salta, Argentina.]

Passa-Quatro, Rio Las Pedras, Minas Geraes, Brazil, 1000 meters, I ♂.

The description shows that Giglio-Tos failed to associate the sexes of *brasiliensis*, erecting the synonymous *Loboptera laurenziana*, based on the female sex of the species.

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[57] In males of *brasiliensis* this series may be called uniseriate only because the transition from the heavy elongate proximal spines to the small, but not piliform, distal spines is irregular and not abrupt. In some males a number of the more distal spines, being smallest and of subequal size, might lead one to term the spine armament of this margin biseriate.

In the females the decrease averages less but shews similar individual variability.

The large Argentinian series before us is recorded on page 264 and a table of measurements for the species is supplied on page 265 of the present paper.

NYCTIBORINAE.

Nyctibora sericea Burmeister.

1826. *Blatta limbata* Thunberg, (not of Charpentier, 1825), Mém. Acad. Imp. Sci. St. Pétersb., X., p. 278.
1838. *Nyctibora sericea* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 501. [Brazil.]

Tijuca, Rio de Janeiro, Brazil, 1 juv. ♂, 1 juv. ♀.

Shelford has pointed out that Burmeister's *sericea* was the same as Thunberg's *limbata*, but failed to note that the latter author's *Blatta limbata* was preoccupied.

EPILAMPRINAE.

Phoraspis flavipes Blanchard.

1837. *Phoraspis flavipes* Blanchard, Ann. Soc. Ent. France, VI, p. 291, pl. XI, fig. 2. [Brazil.]

Tijuca, Rio de Janeiro, Brazil, 500 to 1000 meters, VIII to X, 1 ♀, [Hebard Cln.].

Phoraspis brachytaenia [58] new species. Plate XV, figure 3.

This insect is very closely related to *P. picta* (Drury) and may prove to be a geographic race of that species. It may, however, be quickly recognized by its slightly more slender appearance and shorter tegminal bands.

Type: ♂; State of Santa Catharina, Brazil. [Hebard Collection, Type no. 753.]

Size smaller and form slightly more slender than in *picta*. In other respects agreeing closely with that insect, except that the vinaceous-rufous lateral band on each of the tegmina is, both dorsal and ventrad, much shorter, being abruptly terminated distinctly before the median portion of the tegmen, while in *picta* it extends considerably caudad of that point and narrows more gradually to its apex.

Allotype: ♀; Morretes, Paraná, Brazil. [Paris Museum.]

Agrees closely with the male sex, except in its somewhat larger size. In form the sexes are similar, the present female being slightly more slender than the males of *picta* at hand.

General coloration shining black. Interocular space broadly ochraceous-tawny, marbled with buff which shows a tinge of orange. First three joints of antennae blackish brown, varying to ochraceous

[58] From βραχυ-ταινία, in allusion to the reduced band of the tegmina, which is much shorter thna in the very closely allied *P. picta*.

tawny. Pronotum with lateral portions of cephalic margin rather narrowly translucent warm buff, the internal margins of those areas as broadly convex as the external margins. Tegmina dorsad and ventrad with a broad proximal band of vinaceous-rufous, terminating abruptly before the median portion, this band of about equal width throughout, covering the space from the humeral trunk to near the costal margin proximad, the mediastine vein running obliquely through its distal portion.[59]

MEASUREMENTS (*in millimeters*).

♂ *P. picta*	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen	Length of taenia	Width of taenia
Tijuca, Rio de Janeiro, Brazil	15.2	5	7.3	14.8	7.3	8.5	1.8
Tijuca, Rio de Jnaeiro, Brazil	16.3	5.5	8	15	7.4	9.5	1.9
P. brachytaenia							
Santa Catharina, Brazil, *type*	15	4.8	6.6	13	6.6	5.7	1.7
Morretes, Paraná, Brazil, *paratype*	13.7	4.9	6.3	12.8	6	4.9	1.1
Morretes, Paraná, Brazil, *paratype*	14.2	4.8	6.7	13	6	6.2	1.7
Morretes, Paraná, Brazil, *paratype*	14	4.6	6.7	13	6	6.3	1.7
♀							
Morretes, Paraná, Brazil, *allotype*	16.	5.8	7.2	14	7	5.9	2

In addition to the type and allotype, three paratypic males, bearing the same data as the allotype, have been examined.

Phoraspis picta (Drury) Plate XV, figure 4.

1782. [*Blatta*] *picta* Drury, Ill. Exot. Ent., III, p. 76, ind. (2), pl. 50, fig. 3. [Rio de Janeiro, Brazil.]

Tijuca, Rio de Janeiro, Brazil, 800 to 1000 meters, 2♂.

These specimens are discussed, measured and compared under the treatment of the preceding closely related insect.

Epilampra verticalis Burmeister.

1838. *E*[*pilampra*] *verticalis* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 505. [Brazil.]

Passa-Quatro, Rio Las Pedras, Minas Geraes, Brazil, 1000 meters, 2 ♀.

Hedaia yersiniana (Saussure) Plate XII, figures 3 and 4.

1864. *Epilampra yersiniana* Saussure, Rev. et Mag. de Zool., (2), XVI, p. 324. [♀, Brazil.]

Curityba, Paraná, Brazil, 1♂, [Hebard Cln.].

[59] Though weakly indicated, this is the only vein distinctly discernible on the heavily and very thickly impresso-punctate tegminal surface.

This is the first specimen of this magnificent cockroach, largest of the known American Epilamprinae, we have seen.

Length of body 38, length of pronotum 8.3, width of pronotum 12.7, length of tegmen 51.2, width of tegmen 15 mm.

The limb armament, tarsi, pulvilli and tarsal claws are similar to those of the species of *Epilampra* here recorded, except that the large spines are so large that their margins can be seen to be strongly, though microscopically, serrulate, while the three tarsal joints after the metatarsus all have minute spines bordering the large pulvilli laterad, these briefly continued proximad in the proximal section of the second joint, the ventral surface of which is not fully occupied by the pulvillus.

The form of the pronotum, strongly convex above the head and flat in the produced meso-caudal portion, is very different from that of any of the species assigned to *Epilampra*, while the apices of the tegmina are on the median line and rather sharply rounded.

BLATTINAE.

Periplaneta americana (Linnaeus)

1758. [*Blatta*] *americana* Linnaeus, Syst. Nat., Ed. X, p. 424. [America.]

Bahia, Brazil, 1 ♂.

Rio de Janeiro, Brazil, 3 ♂, 1 juv.

PANCHLORINAE.

Leucophaea maderae (Fabricius)

1781. *B*[*latta*] *maderae* Fabricius, Spec. Ins., I, p. 341. [Madeira.]

Bahia, Brazil, 2 ♂, 1 small juv.

Pycnoscelus surinamensis (Linnaeus)

1767. [*Blatta*] *surinamensis* Linnaeus, Syst. Nat., Ed. XII, p. 687. [Surinam.]

Bahia, Brazil, 1 ♀, 1 juv.

Rio de Janeiro, Brazil, 1 ♀.

Tijuca, Rio de Janeiro, Brazil, 800 to 900 meters, 1 ♀.

Panchlora cubensis Saussure.

1862. *P*[*anchlora*] *cubensis* Saussure, Rev. et Mag. de Zool., (2), XIV, p. 230. [♀, Cuba.]

Bahia, Brazil, 5 ♂, 3 ♀.

Panchlora prasina Burmeister.

1838. *P*[*anchlora*] *prasina* Burmeister, Handb. Ent., II, Abth. II, Pt. I. p. 507. [Rio [de Janeiro], Brazil.]

Tijuca, Rio de Janeiro, Brazil, 500 to 900 meters, 1 ♀.

We agree with Brunner in considering Saussure's *P. glauca*, described from Brazil, a synonym of this species.

Of the green and plainly colored species of this genus, *prasina* attains the largest size, apparently usually exceeding even the largest individuals of *P. exoleta* Burmeister. The measurements for the present specimen are: length of body 25, interocular width .7, length of pronotum 7.7, width of pronotum 9.5, length of tegmen 27.2, width of tegmen 9.2 mm.

Tribonium conspersum (Guérin and Percheron) Plate XII, figure 7.

1835. *B[latta] conspersa* Guérin and Percheron, Gen. Ins., 2e Livr., No. 3, pl. 2. [Brazil.]

Tijuca, Rio de Janeiro, Brazil, 1 ♀, 7 juv. ♂, 3 juv. ♀.

This species has been synonymized under *T. spectrum* (Eschscholtz). We find that the tegmina and wings scarcely surpass the apex of the abdomen in the female here recorded, as so splendidly figured by Guérin and Percheron, and described by Serville.[60] In addition, the reflexed proximal portion of the tegminal marginal field is distinctly lower than wide, with a weak emargination of the costal margin at its base. As a result, the name *conspersum* is restored. This condition may be found to represent a geographic race of *spectrum*, but at present insufficient material is at hand to determine whether or not that is true.

The measurements of the present female are; length of body 22.1, length of pronotum 4.9, width of pronotum 9.1, length of tegmen 20, width of tegmen 7.6 mm.

Four instars of the handsome and very differently marked immature condition (shown by the figure here given) are represented.

Tribonidium signaticollis (Burmeister) Plate XII, figure 8.

1838. *Z[etobora] signaticollis* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 510. [Brazil.]

Curityba, Paraná, Brazil, 1 ♂, [Hebard Cln.].

At first glance, this specimen would appear to be solidly blackish chestnut-brown in general coloration, except for the transparent portion of the pronotum cephalad, which is tinged with warm buff. On closer examination, however, the pronotum is seen to have patches of very slightly paler color mesad and latero-caudad, showing a rich deep mahogany red tinge, the marginal and anal fields of the tegmina very faintly tinged with this color.

[60] Recorded by that author and later by Guérin, from Cuba, almost certainly in error. The material recorded as this species by Burmeister, Saussure and Brunner represents instead the closely related *spectrum*.

The present specimen is apparently somewhat larger than the individual originally described; length of body 17, length of pronotum 4.6, width of pronotum 6.7, length of tegmen 16, width of tegmen 5.6 mm.

The genus *Tribonidium* includes species with pronotum impressopunctate and cephalic margin convex, as in *Zetobora*. The pronotum is, however, not broadly though conspicuously reflexed toward the cephalic margin, agreeing in this respect with *Phortioeca* instead. The species are of small size compared with those of the allied genera and in the present species the pronotal magnitude is comparatively very small.

Tribonidium amplum new species. Plate XII, figures 9 and 10.

This insect is evidently closely related to *T. transversum* (Brunner),[61] differing in the larger size, more ample pronotum and tegmina and, wings, which in the male sex, show no reduction whatever.

Compared with the male of *T. signaticollis* (Burmeister) recorded above, the present males are seen to differ in the conspicuously broader pronotum, with impressed punctae smaller and nearly absent in the cucullate portion, scattered and minute caudad of that area, entire cucullate and discal portions of pronotum appreciably flattened and more ample organs of flight.

Type: ♂; Tijuca, Rio de Janeiro, Brazil. [Paris Museum.]

Size large, form moderately broad, for this genus of small and moderately broad, though graceful, species. Head flat, interocular space broad, slightly over half as broad as that between the antennal sockets, interocellar area shallowly concave; ocelli large, their surfaces at a decidedly obtuse angle to the interocellar area. Maxillary palpi very short, third joint subequal in length to the enlarged fifth joint, fourth joint three-fifths as long, expanding strongly distad. Pronotum ample; cephalic margin broadly convex to the rounded lateral angles, weakly reflexed in lateral portions; lateral angles situated slightly caudad of median point, latero-caudal margins to shoulders of equal obliquity and convexity to lateral portions of cephalic margin, caudal margin between humeral shoulders transverse, with median angulation feebly suggested. Pronotum cucullate above head, this and the area caudad to the shoulders raised

[61] It appears doubtful from the literature that Saussure's assignment of *transversum* under his *monasticum* is correct. From his description and figure of the latter species it would appear to differ from *transversum* in having a pale transverse band on the vertex, the pronotum more ample (5.5 by 8.5 mm.), with caudal margin more strongly transverse, but with tegminal and wing length apparently proportionate. Unfortunately Saussure did not give separate measurements for the sexes. A smaller Brazilian female recorded by that author, having the head dark and immaculate is apparently referable to *transversum*.

and flattened, with a few small, weak depressions and minute widely scattered impressed punctae in caudal portion, which portion laterad is bounded by low rounded ridges, strongly divergent from base of hooded portion, then parellel to the shoulders; surface latero-caudad thickly impresso-punctate, though not as heavily or thickly as in *signaticollis*. Tegmina and wings fully developed, showing no reduction whatever and extending well beyond apex of abdomen. Abdomen, including asymmetrical Panchloroid subgenital plate, with straight, elongate, similar styles; limbs short; cephalic femora supplied with a few minute chaetiform spines distad, terminating in a single stout though greatly reduced spine; other femora unarmed, lacking even genicular spines; large pulvilli and large arolia between the simple, symmetrical tarsal claws, all as characteristic of the genus.

Allotype: ♀ ; State of Minas Geraes, Brazil. [Paris Museum.]

Agrees with the type, except as follows. Size larger, form somewhat broader, tegmina and wings showing some reduction, reaching to base of supra-anal plate. Head broader and more flattened, interocular space three-fifths that between antennal sockets, ocelli smaller. Pronotum broader, the lateral angles slightly more caudad in position, the cucullate and other raised portions minutely and rather thickly impresso-punctate, though by no means as thickly as in the male of *signaticollis* before us. Subgenital plate large, simple, free margin broadly concave opposite cerci.

General coloration (of males) deep chestnut-brown; the translucent latero-caudal portions of the pronotum and tegmina, when held to the light, chestnut brown. Pronotum with cephalic third dully transparent warm buff, the darker color invading this area in cucullate portion to near the cephalic margin, the caudal borders on each side straight, transverse, considerably cephalad of the lateral angles. Ventral surface cinnamon-buff, the abdominal segments with lateral areas and femora distad paler, buckthorn brown. Antennae blackish brown, becoming chestnut brown proximad.

The female is similar but darker, more solidly blackish brown, with cephalic third of pronotum dully transparent antimony yellow.

Length of body ♂ 18.3[62]–18.8, ♀ 20.7; length of pronotum ♂ 4.9–5, ♀ 5.3; width of pronotum ♂ 7.–7.8, ♀ 8.2; length of tegmen ♂ 17.3–17.7, ♀ 15.2; width of tegmen ♂ 6–6.2, ♀ 6.1 mm.

In addition to the described pair, a paratypic male and five immature examples, bearing the same data, are at hand.

The immature condition is strongly patelliform, the dorsal surface minutely and thickly tuberculate, these interspersed with more prominent tubercles.

General coloration verona brown, beautifully and symmetrically marked with cinnamon-buff. Transparent portion of pronotum cephalad ochraceous-buff, other segments streaked laterad and punct-

[62] The measurements of the type are given first.

ate at caudal margins with cinnamon-buff, a medi-olongitudinal band of this color on mesonotum and metanotum, the abdomen with broadly projecting portions of tergites paler, tessellate, and with a concentric paler tessellate area, this inclosing the median portion of the median segment and first two tergites, which area is of the darker ground color, the tergites each with a fleck cinnamon-buff between the lateral and median areas.

Without much larger series than have ever been assembled, the separation of many of the species of such genera as the present, *Phoraspis*, *Paratropes* and *Tribonium*, is a most difficult problem. The differences shown by the forms recognized by us as *Tribonidium monasticum*, *transversum* and *amplum*, may indicate full specific distinction, geographic racial differentiation or, indeed, mere individual variation in a single exceptionally plastic species. Additional material with full data would throw much light on this problem, if not definitely solving it. Color differences such as are shown and different degrees of structural and tegminal and wing modification are sometimes unimportant, sometimes of great diagnostic value. It is clear that in genera such as the present, where limb armament is so greatly reduced and the genitalic features may show generic but not specific differences, we are forced to weigh the recognizable differences and to form conclusions as to their value in each individual case, without the degree of assurance possible when familiar with other groups and working with even unique individuals of many of the species.

BLABERINAE.

Petasodes mouffeti (Kirby) Plate XIII, figure 4.

1817. *B[latta] mouffeti* Kirby in Spence, Introd. Ent., II, p. 329. [Brazil·
1818. *B[latta] mouffeti* Kirby, Trans. Linn. Soc., XII, p. 448. [Brazil.]

Tijuca, Rio de Janeiro, Brazil, 1 ♀, 2 juv. ♀.

Kirby first proposed this name for a species he recognized as having large pulvilli and no arolia between the tarsal claws, referring to Mouffet's figure published in 1634. That figure is extremely unsatisfactory, though we do not agree with Burmeister in considering it to resemble more closely *Leucophaea maderae* (Fabricius) than the species now assigned to the genus *Petasodes*. In 1818, Kirby has given a description of the insect, decidedly more comprehensive than many of that time, and we follow Burmeister, but not subsequent authors, in recognizing *mouffeti* as a distinct species.

Compared with females of the other species of the genus before us, the present female is seen to be decidedly narrower, with prono-

tal margin, both cephalad and caudad, pale, the tegmina elongate and the wings fully developed.

Length of body 36, length of pronotum 11, width of pronotum 19.8, length of tegmen 35, width of tegmen 15.8 mm.

The immature condition of this species is extraordinarily handsome. Though moderately supplied with microscopic spines on the dorsal surface (particularly on the thoracic segments, very sparingly on the median segment and proximal abdominal tergites) those before us have few particles of foreign matter adhering and appear smooth and shining to the naked eye. The general coloration is warm buff, the lamellate margins weakly transparent and light buff, the insect beautifully marked with rich blackish brown, shading to prouts brown as shown by the figure. Adults and immatures may be readily separated from those of *Monastria biguttata* (Thunberg) by the femoral spination. In the present species the cephalic femora have on their ventro-cephalic margin a minute but heavy distal spine, preceded by a few irregularly placed chaetiform spinulae; the median and caudal femora bear only a minute but heavy genicular spine.

Monastria biguttata (Thunberg)

1826. *Blatta biguttata* Thunberg, Mém. Acad. Imp. Sci. St. Pétersb., X, p. 276, pl. 14. [♀, Brazil.]

Tijuca, Rio de Janeiro, Brazil, I ♂, 4 juv.

Adults and immatures may be quickly separated from those of *Petasodes mouffeti* (Kirby) by the femora, which entirely lack heavy spines, the cephalic femora being supplied distad on the ventro-cephalic margin with minute chaetiform spines and dorsad along the caudal portion of the distal margin with a few similar spinulae.

All of the juveniles are heavily coated with foreign particles, which gives them a dingy unattractive appearance. These particles are seen under the miscroscope to be adhering to a multitude of closely placed, minute and usually curved spines, which cover the dorsal surface and marginal portions of the ventral surface. A color pattern, somewhat resembling that of juveniles of *P. mouffeti*, is barely discernible on the dorsal surface of the abdomen through its dingy coating.

CORYDIINAE.

CEUTHOBIELLA new genus.

1920. *Melestora* Hebard (not of Stål), Mem. Am. Ent. Soc., No. 4, p. 121.

To this genus belong the species described as *Melestora minutissima* by Rehn, from Igarapé-Assú, Pará, Brazil, and as *Melestora micra* by Hebard from Paraiso, Canal Zone, Panama.

Genotype.—Ceuthobiella minutissima (Rehn).

The genus is closely related to *Ceuthobia,* described on page 292, males agreeing in the comparatively slender form, interocular space not wrinkled, pronotum broadest meso-caudad with latero-caudal oblique sulci moderately well defined but no trace of medio-longitudinal sulcation, sinistral tegmen without a diagonal channel, wings with radiate field folding fan-wise and dorsal surface of abdomen with median segment specialized.

It differs in the even smaller size,[63] darker general coloration, minute and inconspicuous ocelli, tegmina with discoidal sectors almost longitudinal,[64] much narrower wings which are only slightly over half as broad as long, scarcely appreciable costal veins which are not clubbed distad, subobsolete intercalated triangle, subgenital plate more asymmetrical and showing a different type of specialization and complete absence of genicular or other spines on the femora.[65]

It would appear probable that *Nothoblatta* Bolivar (Mitth. Schweiz. Ent. Ges., XI, p. 139, (1905).), including the single species, *wasmanni* Bolivar, belongs to the present group of genera and is nearest to *Ceuthobiella.* From the literature, that genus apparently differs in cephalic, palpal, pronotal, genitalic and tibial features. Unfortunately the description is vague concerning some of the most important characters.

Oulopteryx meliponarum new species. Plate XV, figures 7, 8, 9 and 10.

This striking species is first Blattid known to inhabit the nests of bees. The series from which it is described was taken from the nest of the diminutive, black, stingless bee, *Melipona nigra* Lepeletier.

Compared with *O. dascilloides,* described on page 215, the present insect is seen to differ in the much paler brown coloration, somewhat less coriaceous and much more hairy pronotum and teg-

[63] The two described species are the smallest of the fully winged American Blattidae known. Length of body, in normal position, approximately 4.5 mm.

[64] Only the last of these toward the sutural margin is seen to be weakly oblique to that margin.

[65] The ventro-cephalic margins of the cephalic femora are supplied in distal portion with a row of hairs, approaching the condition we term piliform spines. (from type of *A.minutissima*).

mina, more ample and distinctly more flattened pronotum, tegmina with costal margin less decidedly oblique in distal portion, features of the genitalia and somewhat less decidedly atrophied armament of the cephalic femora.

The annulate antennae afford a striking feature of coloration.

Type: ♂; Fazenda do Sobrado, near Passo-Quatro, Minas Geraes, Brazil. June. [Paris Museum.]

In addition to the characters given in the generic description on page 214, we record the following. Eyes extending briefly ventrad of antennal sockets, convergent lateral margins of cheeks to clypeal suture brief. Interocular space slightly over half width between antennal sockets. Maxillary palpi with fifth joint large, slightly shorter than third, fourth joint two-thirds as long as third joint. Pronotum with bosses of disk smooth, showing a somewhat lyrate pattern; other portions, including weak bosses at humeral shoulders, heavily impresso-punctate. Tegmina moderately coriaceous, extending distinctly beyond cercal apices, margins converging evenly distad. Wings with rolls of folded appendicular fields lying obliquely. Median segment as described for *dascilloides*. Supra-anal plate with length equal to about one-fourth proximal width, suddenly and strongly concave in meso-distal portion, lateral margins convergent and forming rather broadly convex projections on each side of this area, moderately supplied with long hairs in these portions, median section of margin nearly transverse, showing a very feeble convexity, without hairs. The ventral surface of this plate is symmetrically specialized, mesad on each side at the base of the projecting portions it is produced in a transverse and chitinous triangular projection, with apex acute and curved outward toward each side, these fang-like processes lie on the deeply concave faces of two large subchitinous, symmetrical plates, which, springing from near the cercal bases, are transverse and vertical, reaching to the anal opening. Subgenital plate small and nearly symmetrical, lateral margins equally oblique, the sinistral very feebly convex, the dextral as feebly concave, rounding into the transverse distal margin at the style sockets. Styles similar, simple, straight, cylindrical, not tapering except at the rounded apex, each about six times as long as its width, three-quarters as long as the distance between the style bases. Cephalic femora with ventro-cephalic margin supplied distad with minute, piliform, well separated spines, terminated by a single elongate, heavy distal spine.

Allotype: ♀; same data as type. [Paris Museum.]

Agrees closely with the male sex, differing in the following features. Interocular space wider, nearly as wide as that between the antennal sockets. Tegmina and wings showing some slight reduction, extending to cercal apices. Dorsal surface of abdomen unspecialized. Supra-anal plate slightly over two-fifths as long as proximal width lateral margins nearly straight, oblique to the

rather broadly truncate apical portion, the surface of which is weakly concave. Subgenital plate broad, the meso-distal portion (approximately one-sixth of the entire surface) moderately produced, occupied by two rounded-triangular plates, forming nearly vertical valves and separated proximad from the basal portion of the plate by a strongly concave margin.

Coloration of sexes similar. Head bright ochraceous-tawny, becoming ochraceous-orange on occiput, which portion is marked with suffused vertical stripes of rich chestnut brown. Proximal antennal joints, mouthparts and all but distal joint of maxillary palpi ochraceous-buff, last joint of maxillary palpi cinnamon-brown. Antennae in remaining portions mummy brown, near distal extremity with an annulus of light buff (occupying usually three, rarely as many as five, joints). Pronotum shining russet. Tegmina translucent, shining mars brown, paling slightly laterad and distad to russet; portion of dextral tegmen, concealed when at rest, transparent, weakly tinged with tawny. Wings delicate, transparent, very faintly tinged with ochraceous-buff, this more decided in area of costal veins and in radiate field toward its juncture with the appendicular field. Dorsal surface of mesonotum, metanotum and abdomen light ochraceous-buff, the latter in all but proximal portion with a broad marginal suffusion of prouts brown, which broadens distad to include the supra-anal plate and preceding tergites. Cerci cinnamon brown. Ventral surface ochraceous-tawny, often pale and tinged with orange, suffused laterad with prouts brown, this not as broad as dorsad. Limbs ochraceous-buff tinged with tawny.

In the immature condition the shining dorsal surface is tawny or russet, deepening to mars brown laterad. The striking antennal and other markings are as in the adults.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Type	10	2.8	3.6	10.6	3.5
Paratypes (5)	9.8–10.8	2.8–2.8	3.4–3.6	10.8–11.1	3.4–3.8
♀					
Allotype	9.2	3	3.8	9.2	3
Paratypes (3)	9.2–9.4	2.9–3	3.7–3.8	8.6–8.8	3–3

In addition to the type and allotype, a series of five males, three females, three immature males, five immature females and three very small immature specimens are before us, bearing the same data. Of these the adults are designed paratypes. Five different instars of immaturity are apparently represented.

In the paratypes with wings spread, the following measurements are shown: length of wing ♂ 11.7, ♀ 9; width of wing ♂ 8.2, ♀ 6.8;

length of appendicular field ♂ 3.8, ♀ 3.05; width of appendicular field ♂ 4.7, ♀ 3.4 mm.

MELESTORA Stål.

1858. *Melestora* Stål, Kongl. Svenska Freg. Eugenie's Resa, Zool., I, p. 311.

We regret to state that, from the material now available, we are convinced that our recent characterization of the genus[66] is incorrect, applying instead to the genus *Ceuthobia*, described on page 292.

The genus *Melestora* as here defined, includes the South American species *adspersipennis* Stål, *fuscella* Stål and *argentina* (Rehn).[67]

Genotype.—Melestora adspersipennis Stal.[68]

This genus shows, in the male sex, nearest relationship to *Compsodes*, agreeing in the elliptical pronotum with a medio-longitudinal sulcus[69] and somewhat impressed disk, femora not strikingly enlarged, sinistral as well as dextral tegmen with a conspicuous diagonal channel[70] and discoidal sectors oblique, wings with anterior field over twice the area of the radiate field, with ulnar vein developing complete arcuate branches and radiate field proximal in position and not folding, dorsal surface of abdomen with third tergite specialized mesad[71] and pulvilli absent.

We find that *Melestora* as properly restricted,[72] differs from *Compsodes* in the male sex in having the interocular area decidedly wrinkled, the median and caudal femora supplied on their ventrocephalic margins with a single distal spine, as well as having the genicular spine, which is present in both genera.

These genera represent a distinctive group, particularly striking in having the anterior field of the wings very large, in area approxi-

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[66] Mem. Am. Ent. Soc., No. 4, p. 121, (1920).

[67] Incorrectly referred by us to the genus *Compsodes*, at the time that genus was described. Mem. Am. Ent. Soc., No. 2, p. 209, (1917).

[68] Selected by Kirby, Syn. Cat. Orth., I, p. 167, (1904).

[69] In the aberrant *Compsodes cucullatus* (Saussure and Zehntner), the pronotum is produced over the head, the cephalic margin showing greater angulation, while the medio-longitudinal sulcus is subobsolete.

[70] This channel is not shown by Stål's figure. That author's description of the interocular area and pronotum leads us to the present conclusion and the belief that the diagonal channel was by accident omitted from the figure.

[71] This was not noted by us in our description of *Compsodes schwarzi* (Caudell), Mem. Am. Ent. Soc., No. 2. p. 211, (1917). In that species the third tergite is weakly impressed meso-proximad, with a minute node mesad, surrounded by very minutely microscopic hairs, the caudal margin of the preceding tergite weakly raised, thus showing a broad convexity above this.

[72] Judging from the data given by Stål, material of *argentina* at hand and a series representing all of the known species of *Compsodes*.

mating that of the tegmen, and radiate field very small and not folding.

Though very close, we believe that *Melestora* and *Compsodes* represent distinct generic units, occupying the same position in the biota of the regions where they are found, the former in the southern portion of tropical South America, the latter in tropical North America.

Euthyrrhapha pacifica (Coquebert)

1804. *Blatta pacifica* Coquebert, Illustr. iconogr. Insect., III, p. 91, pl. XXI, fig. I. [Islands of the Pacific Ocean.]

Rio de Janeiro, Brazil, 1 ♂.

This species was apparently introduced into Brazil, probably from Oceania, a very long time ago; it was recorded from Brazil at an early date and definitely from Rio de Janeiro by Gerstaecker in Van der Decken.[73]

Hypercompsa cynipsoides Walker.

1868. *Hypercompsa cynipsoïdes* Walker, Cat. Blatt, Br. Mus., p. 62. [♂; Tijuca, [Rio de Janeiro], Brazil.]

Curityba, Paraná, Brazil, 2 ♂.

The present material is assignable without question to Walker's *cynipsoïdes*, which name has been placed in synonymy under *H. fieberi* (Brunner) by Kirby. We do not believe Kirby's action to be correct, but examination of the type of *fieberi* alone can verify this. It would seem probable that Brunner would have described the large and strikingly pale spot of warm buff, on each side of the abdomen latero-proximad, had his material shown this feature. This marking is, as described by Walker, conspicuous, occupying the lateral portions of the first and second tergites and corresponding area ventrad, and shows through the fenestrate tegmina when these are at rest.

Holocompsa nitidula (Fabricius)

1781. *B[latta] nitidula* Fabricius, Spec. Ins., I, p. 345. [[♀], Surinam.]

Bahia, Brazil, 1 ♀.

OXYHALOINAE.

Chorisoneura perlucida (Walker)

1868. *Blatta perlucida* Walker, Cat. Blatt. Br. Mus., p. 99. [♀; Tijuca, [Rio de Janeiro, Brazil].]

Tijuca, Rio de Janeiro, Brazil, May, 2♂.

The sinistral style in males of this species has its base produced dextrad and somewhat swollen, bearing a small tuft of agglutinated,

[73] Reisen in Ost-Afrika, III, Abth., II, p. 9, (1873).

spiniform hairs. The dextral style bears mesad on its external face a stout chitinous spine, directed proximo-dextrad and curved proximad. The intervening triangular production between the bases of the styles has a minute but stout spine at its apex, another much smaller spine on the dextral margin, the sinistral margin being broadly subchitinous.

The general structure and very faintly tessellate tegmina indicate the close affinity of this species to those of the genus recorded below.

Chorisoneura gracilis (Saussure)

1862. *Bl*[*atta*] *gracilis* Saussure, Rev. et Mag. de Zool., (2), XIV, p. 167. [[♀], Brazil.]

Tijuca, Rio de Janeiro, Brazil, 3 ♂, 1 ♀.

The males have the styles longer than in *C. perlucida* (Walker), the dextro-proximal specialization of the sinistral style and intervening triangular production between the bases of the styles in every way similar, the dextral style with a much smaller, minute, spine mesad on its dorsal margin, directed proximad.

Saussure's original description would appear to have been taken from a smaller individual, the material before us agreeing better with Brunner's characterization of his Brazilian *flavoantennata* and with Saussure and Zehntner's discussion of material from Rio Grande do Sul, Brazil, at the time those authors placed *flavoantennata* in the present synonymy.

The tegminal tessellation in these specimens agrees closely with that of *C. perlucida* (Walker). It is, however, a trifle more distinct, while in two individuals the veins proximad are weakly whitish.

Chorisoneura nigrifrons (Serville)

1839. *Blatta nigrifrons* Serville, Hist. Nat. Ins., Orth., p. 109. [♂, ♀; Brazil.]

Tijuca, Rio de Janeiro, Brazil, 1 ♂, [Hebard Cln.].

Closely agreeing with the two previous species in size, form and general coloration, the striking cephalic marking would appear to be a feature by which this species may be readily recognized. The genitalia of the present specimen are in a poor state of preservation.

PERISPHAERINAE.

Brachycola tuberculata (Dalman)

1823. *Blatta tuberculata* Dalman, Analecta Ent., p. 87. [Brazil.]

Tijuca, Rio de Janeiro, Brazil, 3 ♀, 2 small juv.

The very early stage, represented by the immature individuals

before us (length 7 mm.), is generally buffy, the antennae dark with annuli as in the adult, the pronotum with a homologous dark paired patch which, however, sends a ray of the same color latero-caudad instead of cephalad on each side, the mesonotum and metanotum dark in broad meso-proximal portion. In this stage arolia are absent.

HORMETICA Burmeister.

1838. *Hormetica* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 511.
1865. *Dasyposoma* Brunner, Nouv. Syst. Blatt., p. 387.

After considerable study of the problem, we are now convinced that *Dasyposoma* is a synonym of *Hormetica*; the genotype and other species referred to, representing immature individuals of *Hormetica* in the later instars, as discussed below.

Hormetica ventralis Burmeister.

1838. *H[ormetica] ventralis* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 512. [Rio de Janeiro, [Brazil].]
1865. *D[asyposoma] nigra* Brunner, Nouv. Syst. Blatt., p. 388, p.. XIII figs. 57 A to C.. [♂, ♀; Brazil.]

Tijuca, Rio de Janeiro, Brazil, 1 large juv. ♂.

This specimen agrees closely with an immature female in the same instar from Puerto Bertoni, Paraguay, recorded by Rehn as *Dasyposoma nigra* and apparently referable to *Hormetica atlas* Rehn, which species is very closely allied to the present.

Recent studies of a large series of both sexes, including adults and immatures, of *Hormetica apolinari* Hebard, from Colombia, have shown that in that species the early stages lacked pulvilli, the adults having well-developed pulvilli. Futhermore it was found that Saussure's *Dasyposoma marmorata* was based on the immature condition of a species of *Hormetica* closely related to *apolinari*.

The present material is, we believe, referable to *Hormetica ventralis*, and it is highly probable that Brunner's *Dasyposoma nigra* is based on the immature condition of this species; certain it is that the name is referable to this or one of the very closely related species of *Hormetica*.[74] The two immatures of Brazilian species at hand also lack arolia though the surface of the tarsal joint between the tarsal claws is swollen in this instar, apparently the last preceding maturity.

[74] Of these we have before us adults, representing both sexes, referred to *laevigata* Burmeister, *atlas* Rehn and *scrobiculata* Burmeister, which have been fully discussed by Rehn, Trans. Am. Ent. Soc., XLIII, p, 341, (1917).

As *nigra* has been designated gentoype of *Dasyposoma,* that genus in consequence falls in synonymy under *Hormetica.*

The coloration of the immature here recorded is as follows. Dorsal surface blackish brown, shining and polished except caudad, where minute subdenticulations roughen the surface; cingulate margins of pronotum, mesonotum and metanotum mars brown. Head mars brown paling to russet on occiput and mouthparts, eyes ochraceous-tawny, ocellar areas more buffy. Antennae with two proximal joints ochraceous-tawny, remainder dark mummy brown, except for a meso-distal annulus of light ochraceous-buff, occupying five joints. Limbs chestnut brown paling to ochraceous-buff on trochanters, bases of tibiae and ventral surfaces of tarsi. Ventral surface of abdomen shining and polished blackish brown, paling to ochraceous-tawny meso-proximad.

Length of body 29.4, greatest width of body (meso-caudad) 17, width of interocular space 3.9, length of caudal tibia 8.7 mm.

Parahormetica tumulosa Brunner.

1865. *P[arahormetica] tumulosa* Brunner, Nouv. Syst. Blatt., p. 385, pl. XII, figs. A to c′. [♂, ♀; Brazil.]

Minas Geraes, Brazil, 100 meters, 1 ♂, 1 juv.

Passa-Quatro, Rio las Pedras, Brazil, 1000 meters, 1 ♂, 1 ♀, 2 juv.

MEASUREMENTS (*in millimeters*).

	Length of body	Length of pronotum	Width of pronotum	Exposed length of tegmen	Proximal width of tegmen
♂					
Minas Geraes, Brazil	28	10.7	14	6.9	6.7
Passa-Quatro, Minas Geraes, Brazil	30.3	11.6	14.4	7.7	6.3
♀					
Passa-Quatro, Minas Geraes, Brazil	28	9	12.7	5 8	5.6
Villa Lutecia, Misiones, Argentina	27.2	8.2	12.8	5.7	5

The immatures are very dark brown with limbs slightly paler and more reddish. Those recorded on page 299 from Argentina are solidly colored above, those from Minas Geraes having the pronotum ochraceous-buff in broad meso-caudal portion and mesonotum, metanotum and proximal abdominal tergites dresden brown in the same areas.

Parahormetica bilobata Saussure.

1864. *Parahormetica bilobata* Saussure, Rev. et Mag. de Zool., (2), XIV, p. 345. [♀; Province of Minas Geraes, Brazil.]

Curityba, Paraná, Brazil, 1 ♂.

Brazil, 1 ♀, [Hebard Cln.].

The size of the specimens here recorded is much greater than that

given by Saussure. With a species subject to as great size variation as is shown by the two specimens, here associated without hesitation, as representing the same species, we feel that we are justified in referring this material to Saussure's *bilobata*. Saussure has described two decided color variations for that species. The two specimens before us agree closely in coloration.

Length of body ♂ 41.8, ♀ 36.7; length of pronotum ♂ 16.7, ♀ 11.7; width of pronotum ♂ 19.5, ♀ 16; length of exposed portion of tegmen ♂ 11.7, ♀ 8; width of tegmen ♂ 9.8, ♀ 7.7; width of interval between tegmina ♂ 7.5, ♀ 5.5 mm.

Section III. Northern Argentina.

The collection from this region, belonging to the Paris Museum, is large and to it have been added a considerable series from the the Hebard Collection, originally the property of Professor Lawrence Bruner. A total of 370 specimens has been recorded, including 22 genera and 37 species, of which 2 genera and 16 species are new.

As a result we have been able to study a much larger series of Argentinian Blattidae than has ever previously been assembled. The species recorded from the subtropical section of northern Argentina represent we believe, a fairly large proportion of the cockroaches which there occur.

Though the Blattidae of Argentina have been by no means neglected in past literature, the fact that over forty-five percent of the species here treated represent new forms, shows that this family has previously received scant attention by collectors. The extremely rich fauna of southern Brazil is continued into tropical northern Argentina, and it is probable that but a small proportion of the Blattidae of that region are as yet known.

Of particular interest are the brachypterous species of the genera *Cariblatta* and *Neoblattella*, the large number of species of the genus *Ischnoptera* (of which the species *caracana* shows extraordinary male dimorphism), the distinctive *Pseudischnoptera rhabdota*, the species of *Epilampra* in which the sexes show decided to very great dissimilarity and the five small species of the Corydiinae.

Eudromiella aglaia new species. Plate IX, figures 4 and 5.

Males of the present species agree closely with males of the genotype, *E. bicolorata* Hebard, described from Panama, differing in the more contrasting coloration, the pronotum with paired longitudinal

lines broader and with all but a caudal patch of the intervening area very dark, as well as in characters of the genitalia, particularly the distinctive specialization of the sixth tergite.

Type: ♂; Carcaraña, Santa Fé, Argentina. [Hebard Collection, Type no. 680.]

Size small, form graceful, structure delicate as characteristic of the genus. Interocular space about three-quarters as wide as that between antennal sockets. Ocellar spots distinct, ocellar areas rounding into interocellar area. Maxillary palpi moderately elongate, third and fifth joints of equal length, fourth joint slightly shorter. Lateral margins of face rather strongly convergent to clypeal suture. Pronotum broadly rounded, symmetrically trapezoidal, the greatest width near the caudal margin, that margin transverse, very broadly convex; surface of pronotum weakly convex. Tegmina and wings extending well beyond cercal apices. Tegmina with numerous, decidedly oblique, discoidal sectors. Wings with (7) heavily clubbed costal veins, with (6) complete branches of the ulnar vein, intercalated triangle small but distinct. Sixth tergite with a large projection meso-caudad, formed by two rounded ridges which unite cephalad, thus forming a V-shaped prominence, surface strongly concave cephalad and laterad of this prominence, supplied cephalad with numerous agglutinated hairs, directed caudad and reaching as far as the blunt apex of the prominence. Supra-anal plate broadly transverse. Paired plate beneath supra-anal plate large and unspecialized. Other concealed genitalic processes complex. Subgenital plate asymmetrical; sinistrad more produced than dextrad, with dextral portion curled upward and inward; styles inset, the dextral decidedly the more so. Sinistral style a flattened lobe, about twice as long as broad, expanding slightly to the truncate apex, the angles of which are broadly rounded. Dextral style somewhat similar but more elongate and slender and curled strongly dextrad toward apex, the base of which portion touches that of the sinistral style. Between the rather irregularly formed styles the median portion of the plate is triangularly produced, nearly filling the interspace between them. Limbs, armament, pulvilli and arolia as characteristic of genus.[75]

Head with occiput ochraceous-buff tinged with tawny, deepening ventrad, with inter-ocular-ocellar area auburn and remaining portions of face blackish chestnut, ocellar spots light buff, antennae snuff brown, the first joint darker proximad. Pronotum with two broad longitudinal bars of deep chestnut brown, which broaden and diverge slightly caudad throughout their length, intervening area mars brown, except in a transverse, rectangulate area caudad which is ochraceous-buff; lateral portions of pronotum transparent, feebly tinged with buff. Tegmina with marginal field and marginal por-

[75] Described, Mem. Am. Ent. Soc., No. 4, p. 35, (1920).

tion of scapular field transparent, feebly tinged with buff, thence becoming suddenly rich chestnut brown, which gradually becomes more dilute distad and toward the costal margin and is there weakly tawny. Wings almost clear hyaline, showing a very faint tawny tinge toward the free margins of the anterior field and with enlarged portions of costal veins white. Abdomen with dorsal surface to sixth tergite blackish brown, narrowly margined laterad with ochraceous-buff, except that the sixth has a suffusion of blackish brown on each side. Cerci chestnut brown, shading to prouts brown distad and narrowly buffy proximad toward the internal margin. Ventral surface of thoracic segments and bases of trochanters chestnut brown, limbs light ochraceous-buff. Ventral surface of abdomen with lateral margins ochraceous-buff, proximad and laterad blackish brown, this leaving the median portion of the mesal section and all of the distal portion ochraceous-buff.

Length of body 9.7–9.3,[76] length of pronotum 2.7–2.7, width of pronotum 3.7–3.6, length of tegmen 10.3–9.9, width of tegmen 3–3 mm.

In addition to the type, a paratypic male, bearing the same data, is in the Hebard Collection.

Dasyblatta chopardi[77] new species. Plate IX, figures 6, 7 and 8.

This interesting species is distinguished from the genotype, *D. thaumasia*, described on page 225, both known only from the male sex, by its smaller size, pale coloration, much wider interocular space and striking genitalia.

The genitalic specialization in these species is seen to represent a distinctive type, the two agreeing in general character of development.

Type: ♂; Colonia Florencia, Rio Tapenaga, Chaco, Argentina. [Paris Museum.]

In addition to the characters given in the generic description on page 224, the following are considered of specific value. Interocular space slightly over one-half occipital ocular depth, three-fifths that between antennal sockets; impressed punctae, the sockets of hairs, particularly conspicuous in the inter-ocular-ocellar area. Third joint of maxillary palpi four-fifths as long as the large fifth joint, slightly longer than the fourth joint. Hirsute tegmina subcoriaceous in appearance, due to the fact that the hairs are invisible except under the microscope; area of dextral tegmen, concealed when at rest, hairless; discoidal sectors (9–10) best termed longitudinal, though toward the sutural margin the last of those in the sinistral tegmen is weakly oblique to that margin, while toward the sutural margin several in the dextral tegmen are slightly irregular

[76] The measurements of the type are given first.
[77] In honor of our friend, Dr. Lucien Chopard.

and moderately oblique. Abdominal tergites apparently much as described for *thaumasia* on page 225.[78] Subgenital plate curled upward and inward sinistro-proximad beside the base of the supra-anal plate and there with a small rounded node, produced caudad beside the lateral margin of the supra-anal plate, its apex armed with two straight chaetiform spines directed caudad. Supra-anal plate three-fifths as long as its proximal width, weakly chitinous in distal portion, this area defined from the proximal area by a delicate but distinct, straight, transverse sulcus, lateral margins feebly concave, not convergent to bases of cerci, straight and strongly oblique to within these, the remaining portion roundly produced, with median emargination feebly suggested. Subgenital plate with sinistro-proximal portion specialized as described above, beyond this with surface moderately convex so that the very broadly and irregularly convex margin nearly touches the cercus, bearing on its internal surface at the margin beneath the cercus a stout straight spine, directed dorso-mesad, this section of the margin terminating at the small simple sinistral style, situated just within the sinistral cercus; this style cylindrical, about twice as long as broad, directed dorso-mesad; beyond this point the margin is very deeply and roundly concave to the dextral style, similar but smaller and more tapering, situated slightly sinistrad of the median point and directed dextro-caudad, the internal surface of the plate at the base of this style bearing two stout spines of equal length curved caudad; remaining large dextral section of the plate curled inward beneath dextral cercus and supra-anal plate to slightly beyond this point, the dorsal outline of the projection triangular, with apex bluntly rounded. Concealed genitalia complex, the paired plate beneath the supra-anal plate apparently developed into projections armed with minute teeth.[79]

General coloration of entire insect ochraceous-buff. Vertex to between ocelli suffused with dresden brown. Eyes blackish brown. Ocelli light buff. Disk of pronotum with a tawny orange tinge. Tegmina showing an exceedingly faint and even tinge of buckthorn brown.

Length of body 9.4, length of pronotum 2.4, width of pronotum 3.2, length of tegmen 9.8, width of tegmen 2.9, length of caudal tibia 3.8, length of caudal metatarsus 1.6 mm.

Though even less striking in general appearance than *thaumasia*, this unique specimen also represents actually one of the most remarkably specialized forms of the Blattidae known to us.

Cariblatta mesembrina[80] new species. Plate IX, figure 16.

This species shows the greatest tegminal reduction known in the genus. In *C. lutea minima* Hebard, from the United States, the

[78] The sinistral portion of the eighth tergite is damaged in this specimen.
[79] Dissection of this unique individual is inadvisable.
[80] From μεσημβρινα=Southern.

tegmina are reduced sufficiently to leave exposed the distal portion of the abdomen, but in that race these organs narrow to the rather sharply rounded apices. In *mesembrina* the tegmina are truncate distad, the costal margin rounding very broadly into the transverse distal margin, so that these organs leave almost the entire dorsal surface of the abdomen exposed.

Though apparently nearest *lutea minima*, the present species is seen to approach that race only in features governed by reduction in the organs of flight and to be derived from a different phylum, the development of the pronotal picturing and cephalic marking being distinctive.

From the pronotal picturing, we believe it best to place the species in linear arrangement after *C. fossicauda* Hebard, described from Trinidad.

The adult male probably shows distinctive genitalic features, as is indicated by the immature examples of that sex at hand.

Type: ♀ ; Carcaraña, Santa Fé, Argentina. [Hebard Collection, Type No. 681.]

Size small, form moderately robust for the genus of very small and moderately slender species. Head with interocular space very slightly wider than that between antennal sockets.[81] Ocellar spots poorly defined. Pronotum with surface evenly and weakly convex, greatest width near caudal margin, that margin transverse, showing practically no convexity. Tegmina strongly reduced, overlapping but not reaching beyond median segment, costal margin rounding very broadly into transverse distal margin, sutural margin straight, rounding suddenly into distal margin a short distance beyond the anal field, with longitudinal trend of discoidal sectors discernible. Wings minute aborted pads, reaching to base of median segment. Supra-anal plate triangularly produced with immediate apex minutely emarginate, length one-third proximal width. Subgenital plate scoop-shaped, projecting moderately mesad, the lateral portions raised so that the plate appears broadly V-shaped mesad when seen from the rear. Ventro-cephalic margin of cephalic femora armed with a row of spines which decrease rapidly and irregularly distad, terminated by two elongate spines; ventro-caudal margin armed with two widely spaced spines meso-distad and a single distal spine. Other ventral femoral margins moderately supplied with spines. Succeeding tarsal joints two-thirds as long as caudal metatarsus, the four proximal tarsal joints supplied with moderately well-developed pulvilli. Large arolia present between the very feebly specialized, symmetrical tarsal claws, these claws

[81] This is slightly narrower than in *lutea minima* and appreciably narrower than normally in the West Indian genotype, *C. delicatula* (Guérin).

having lost an internal flange and with weak serrulations of ventral margin visible only under very high magnification.[82]

Head with occiput ochraceous-buff, a broad band of prouts brown between the eyes, the ventral margin of which is broadly concave, succeeded by a slightly broader band of white, in which laterad are located the ocellar spots and the ventral margin of which is transverse, below this the face is heavily suffused with prouts brown, the remaining portions ochraceous-buff, with flecks of prouts brown below the antennae, which send an oblique ray toward the median portion of the face. Antennae ochraceous-buff, with slight suffusions of darker on the three proximal segments. Maxillary palpi ochraceous-buff, the last joint tinged with tawny and becoming cinnamon brown distad. Pronotum with lateral portions transparent, very faintly tinged with buff; disk ochraceous-buff, beautifully and heavily pictured with cinnamon brown, as figured. Tegmina transparent, very faintly tinged with buff. Dorsal surface of abdomen blackish brown and cinnamon brown, with lateral margins irregularly bordered with ochraceous-buff and three rows of irregular spots of the same color. Cerci ochraceous-buff, ventral surface and dorsal surface proximad suffused with prouts brown, the latter with a fleck of prouts brown meso-distad. Limbs ochraceous-buff, the cephalic femora delicately margined dorsad and all the dorsal spines of the tibiae with flecks at their bases of prouts brown. Abdomen with ventral surface bordered narrowly laterad with light ochraceous-buff, this margined internally with prouts brown, within which is a fleck of the same color on each segment, remaining portions ochraceous-buff, except for a broad mediolongitudinal band of blackish chestnut brown, which expands caudad on the subgenital plate.

Length of body 7, length of pronotum 2.1, width of pronotum 3, length of tegmen 2.7, width of tegmen 2.1 mm.

In addition to the type, a large immature male bearing the same data and a smaller immature individual from Ceres, Santa Fé, Argentina, are in the Hebard Collection.

Neoblattella conspersa (Brunner) Plate IX, figure 20.

1865. *Ph[yllodr omia] conspersa* Brunner, Nouv. Syst. Blatt., p. 106. [♂, Brazil.]

Colonia Florencia, Rio Tapenaga, Chaco, Argentina, 1 ♂, 1 ♀.

Villa Lutecia, near San Ignacio Misiones, Argentina, 4 ♀, 1 juv.

The species has been once previously recorded from Argentina, by Rehn from the Misiones. The male genitalia are here figured

[82] The specialization of the tarsal claws was not recognized at the time the genus *Cariblatta* was described. It is apparent that in degenerate forms this specialization is much reduced or obsolete. In *delicatula* and other long-winged species, a flange, minutely but conspicuously serrulate, is found, but in *lutea lutea* and *lutea minima* this has entirely disappeared, leaving no trace even of serrulation.

for the first time, showing the contrasting differences between *conspersa* and *platystylata*, described on page 229.

The females of these species are separated with difficulty, as commented upon under *platystylata*. In the present insect the lateral margins of the female subgenital plate on each side of the meso-distal portion are produced dorsad in small plates, the truncate apices of these armed with a regular series of (usually 7) equal, chaetiform spines. At the base of these plates, within the anal chamber on the dorsal surface of the subgenital plate, are situated projections of similar character, but more reduced and bearing a lesser number of spines. The size and form of these appendages is subject to some individual variation. In all but these two species of the genus *Neoblattella* known to us, the female subgenital plate shows no trace of such specialization.

The males at hand have the meso-distal portion of the supra-anal plate showing some individual variation. In this sex the subgenital plate is immaculate, the dark marking of the ventral surface of the abdomen not extending that far caudad; this is true for the Argentinian females also, but not for the more intensively colored females from Igarapé-Assú, Pará, Brazil.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Bonito, Pernambuco, Brazil (2)	9.6–10.7	2.6–2.8	3.6–3.7	11.3–11.4	3.3–3.4
Igarapé-Assu, Pará, Brazil	10.8	2.7	3.3	11.6	3.2
Contamano, Rio Ucayali, Peru[83]	9.7	2.8	3.3	11.4	3.1
Colonia Florencia, Chaco, Argentina	11.8	3.1	4.1	12.3	4
Misiones, Argentina	11	3	3.8	12.8	3.8
♀					
Igarapé-Assu, Pará, Brazil (5)	9.1–10.3	2.7–2.8	3.4–3.7	10.4–11	3.3–3.4
Sapucay, Paraguay[84]	9.8	2.8	3.5	10	3.2
Colonia Florencia, Chaco, Argentina	——	3.2	4.2	12.2	3.8
Villa Lutecia, Misiones, Argentina (4)	11–12.5	3–3.1	4–4	12.4–12.6	4–4

Distinctly greater size is shown by the Argentinian series, apparently a geographic feature.

[83] This specimen, in the collection of the Academy of Natural Sciences, was taken October to December, 1912.

[84] This specimen, belonging to the United States National Museum, was recorded as *Blattella conspersa* by Caudell, the individual being mistaken for a male, Jn. N. Y. Ent. Soc., XII, p. 183, (1904).

Neoblattella puerilis (Rehn)

1915. *Ceratinoptera puerilis* Rehn, Proc. Acad. Nat. Sci. Phila., 1915, p. 273, fig. I. [♂; Misiones, Argentina.]

The type of this species now before us, shows that it agrees in all valid generic features with the genus *Neoblattella*. Species of that genus, however, showing decidedly reduced tegmina, were previously unrecognized.

The insect is clearly of more recent common ancestry with the genotype, *N. adspersicollis* (Stål), than many of the species which we believe to be properly referable to *Neoblattella* and it would appear advisable to assign it to the Adspersicollis Group, though additional evidence may show it and the species described below to belong to a distinct, though closely related, group.

The broad form; arrangement of dark punctae on face and disk of pronotum; simple, straight, elongate similar styles; large pulvilli, and decided serration of the flange of the tarsal claws, are all features shared by *adspersicollis*.

The smaller spines of the ventro-cephalic margin of the cephalic femora are irregularly interspersed with a few (3 and 4) chaetiform spines, showing some slight divergence from the condition usually shown by the species of the genus.

Neoblattella tapenagae new species. Plate X, figure 8.

Close relationship to *N. puerilis* (Rehn) is shown. Compared with the male type of that species, females are readily distinguishable by the richer coloration and distinctive markings of head, pronotum and tegmina, the type "B" armament of the ventro-cephalic margins of the cephalic femora and even larger pulvilli.

This is the first case in our studies of the Blattellae where, in the same genus, the armament of the ventro-cephalic margin of the cephalic femora is found to be of type "A" in most species, but as clearly of type "B" in one case. Transitional stages are shown in *N. puerilis* (Rehn) and *N. janeirae*, described on page 226. This difference, we feel we can safely state, may be used as a criterion for generic separation in most genera of the Blattellae, but the characterization of *Neoblattella*, much the largest genus of the group, must be changed to include both types.

Type: ♀; Colonia Florencia, Rio Tapenaga, Chaco, Argentina. [Paris Museum.]

Size large, form very broad for the genus. Interocular space wide, slightly narrower than that between antennal sockets. Ocellar spots moderately large, distinct, these areas rounding broadly into

the adjacent portions. Lateral margins of cheeks weakly convergent ventrad. Maxillary palpi moderately short for the genus, fourth joint nearly as long as third, large fifth joint three-quarters as long as fourth. Tegmina decidedly reduced, covering slightly less than half the dorsal surface of the abdomen; costal margin very gently arcuate, broadly rounding distad into the broadly rounded distal margin, sutural margin nearly straight, rounding much more suddenly, though broadly, into the distal margin; venation distinct, the caudal margin cutting the veins abruptly, the discoidal sectors (3 to 6 in the series) cut off before reaching a truly longitudinal direction, so that the portions shown appear very weakly oblique to the sutural margin[85]. Wings vestigal, extending to the caudad margin of the metanotum. Supra-anal plate two-fifths as long as its basal width, lateral margins broadly concave-convergent to distal portion, which is bilobate, due to a moderate meso-distal emargination (which is sharp in the type, rounded in the paratype). Subgenital plate simple, large, weakly produced, the free margin weakly concave beneath the cerci and mesad, weakly convex between these portions. Ventro-cephalic margin of cephalic femora armed with (4 to 6; in the case of the greater number, with the last two considerably smaller) heavy, elongate, well-spaced proximal spines, succeeded by a row of (11 to 15) minute, closely placede chaetiform spinulae, terminated by three heavy spines, elongats in increasing ratio distad. Pulvilli of four proximal tarsal joint. unusually large for the genus, occupying the entire ventral surfaces of the three tarsal joints succeeding the metatarsus, apices acute, Tarsal claws symmetrical, well-developed flanges with (5) teeth decided. Moderately well-developed arolia present.

Head with vertex light ochraceous-tawny with an orange tinge, a large transverse suffusion of chestnut-brown between the ventral portions of the eyes and dorsal portions of the antennal sockets, ocellar spots and face ochraceous-buff, the latter with a narrow, transverse suffusion of chestnut-brown above the clypeus, which broadens on the cheeks. In one paratype there is an additional narrower transverse suffusion of the same color between these. Pronotum in median portion light ochraceous-tawny with an orange tinge, this bordered on each side by a longitudinal suffusion of chestnut-brown, which broadens caudad; disk with light flecks of chestnut brown,[86] three in an oblique row on each side mesad, two caudad; lateral portions transparent, faintly tinged with buffy, margins themselves buffy with an orange tinge. Tegmina showing a continuation of the pronotum coloring, the suffusion of the humeral

[85] This is not true of *puerilis*, in which the tegminal reduction is as great, but the brief portions of the discoidal sectors are plainly longitudinal to the sutural margin. It would appear that reduction of these organs affects the direction of the veins more in some species than in others.

[86] In one paratype of more intensive coloration these flecks are supplemented by small, weak suffusions and lines, giving a more nearly pictured appearance.

trunk a continuation of the darker pronotal areas, beyond this with veins paler, dresden brown, but intervening areas chestnut-brown. Mesonotum and metanotum ochraceous-buff. Abdomen dorsad shining blackish brown, the broader tergites narrowly margined laterad with ochraceous-buff and with weak, paired, small buffy flecks mesad. Cerci blackish brown, becoming buffy disto-dorsad. Limbs light ochraceous-buff with an orange tinge, very narrowly marked with prouts brown at bases of spines, tarsal joints each heavily suffused with prouts brown distad. Ventral surface of abdomen shining blackish brown, narrowly margined laterad with ochraceous-buff, this including the proximal portion of the subgenital plate.

In a large immature female before us the coloration is much darker. Dorsal surface, except hyaline lateral portions of thoracic segments, which are tinged with dresden brown, blackish brown, this slightly deeper laterad, with slightly paler flecks on the broader abdominal tergites.

Length of body[87] 13.1–13.3, length of pronotum 4.1–4.2, width of pronotum 5.9–5.9, total length of tegmen[88] 6.9–6.7, width of tegmen 4–4.2, length of caudal tibia 5.3–5.5 mm.

In addition to the type, a paratypic female and a large immature female, bearing the same data, as well as a paratypic female, without further data than "Gran Chaco," have been examined.

Blattella germanica (Linnaeus)

1767. [*Blatta*] *germanica* Linnaeus, Syst. Nat., Ed. XII, p. 668. [Denmark.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, March and April, 1 ♀.

Rio Paraná, IX, 29, 1897, 2 ♂, 2 ♀ with oothecae, [Hebard Cln.].

Buenos Aires, Argentina, 1 juv. ♂.

Litoblatta brasiliensis (Brunner) Plate X, figures 14, 15, 16 and 17.

1865 *I*[*schnoptera*] *brasiliensis* Brunner, Nouv. Syst. Blatt., p. 130, pl. III fig. 12. [, ♁ Brazil.]

Colonia Florencia, Rio Tapenaga, Chaco, Argentina, 1♂.

Icaño, Santiago del Estero, Argentina, 14 ♂, 3 ♀.

Las Garzas, Rio Las Garzas, Santa Fé, Argentina, 1 ♂.

Cruz del Eje, Cordoba, Argentina, 1 ♀, [Hebard Cln.].

Cordoba, Cordoba, Argentina, (F. Schultz), 2 ♂, [Hebard Cln.].

San Rafael, Mendoza, Argentina, 680 meters,February, 1♂, 1♀.

The new genus *Litoblatta* is erected to include this species on page 237. We have there placed *Loboptera laurenziana* Giglio-Tos in synonymy as representing the female sex of this species.

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[87] The measurements of the type are given first.

[88] The exposed length of these organs is slightly over one millimeter less.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen[89]	Width of tegmen
Passa-Quatro, Minas Geraes, Brazil	19	4.1	4.8	19.4	5.4
Sapucay, Paraguay	16	3.7	4.4	13.6	4.4
Colonia Florencia, Chaco, Argentina	12.7	3.2	4	13.8	4.1
Icaño, Santiago del Estero, Argentina	11.8	2.9	3.8	11.9	3.3
Icaño, Santiago del Estero, Argentina	13.2	2.8	3.8	13	3.7
Icaño, Santiago del Estero, Argentina	14	3.9	4.7	16	4.1
Icaño, Santiago del Estero, Argentina	17.6	4.3	5.8	19	5.2
Icaño, Santiago del Estero, Argentina	18.8	4.3	6.2	18.8	5.2
San Rafael, Mendoza, Argentina	17	3.8	4.9	19	5.1
♀					
Icaño, Santiago del Estero. Argentina	14	4.8	6.3	2.7	2.2
Icaño, Santiago del Estero, Argentina	18	5.1	7	3.1	2.8
Icaño, Santiago del Estero, Argentina	19	5.7	7.4	3.1	2.7

As indicated above, the series of this species from the vicinity of Icaño, shows an exceptional amount of individual size variation.

Ischnoptera ignobilis Saussure

1864. *Isch[noptera] ignobilis* Saussure, Rev. et Mag. de Zool., (2), XVI, p. 313. [♂, nec ♀;[90] Buenos Aires, Argentina.]

1869. *I[schnoptera] vilis* Saussure, Rev. et Mag. de Zool., (2), XXI, p. 112. [[♂], Argentina.]

1897. *L[oboptera] borellii* Giglio-Tos, Boll. Mus. Zool. Anat. comp. Univ. Torino, XII, No. 302, p. 3. [♀; Caiza and San Francisco, Bolivia; Tala, Argentina.]

Gran Chaco, Argentina, 7 ♂, 1 ♀.

Colonia Florencia, Chaco, Argentina, 4 ♂, 1 juv.

Icaño, Santiago del Estero, Argentina, 14 ♂, 4 ♀.

Tucuman, Tucuman, Argentina, 3 ♀, 2 juv.

Las Garzas, Rio Las Garzas, Santa Fé, Agrentina, 3 ♂.

Carcaraña, Santa Fé, Argentina, 8 ♂, 4 ♀, 10 juv., 1 ootheca, [Hebard Cln.].

Buenos Aires, Buenos Aires, Argentina, February, 1 juv.

Cordoba, Cordoba, Argentina, (F. Schulz), 3 ♂, 1 ♀.

Montevideo, Uruguay, 3 juv.

[89] The exposed length of the tegmen is given for females.

[90] It appears almost certain that a male, possibly with subgenital plate damaged or missing, was described by Saussure; which specimen he recorded as a female.

After careful study of the series at hand, the material previously recorded as *I. vilis* Saussure from Paraguay and the Argentine, and the literature, we are convinced that a single variable species is represented. In coloration, a series of males from Sapucay, Paraguay, agree with the male type of *vilis*, desribed from Corrientes, Argentina, in having the lateral portions of the pronotum slightly paler and more reddish than the dark brown remaining portions. Three Paraguayan males, however, are at hand with pronotum solidly colored. In the Argentinian material all of the males have the pronotum solidly colored, varying from dark brown to rather light reddish brown. In all specimens showing the bicolored pronotal condition before us, the femora are very dark brown the remaining portions very contrastingly colored; this limb coloration appears in the Argentinian material, but shows slightly less decided contrast, varying to a condition in which the limbs are uniform light brown. This latter condition is shown by the majority of the Argentinian males, as well as by two of the three Paraguayan males with unicolorous pronotum. The vertex is individually dark or pale.

In the concealed genitalia we find the paired plate beneath the supra-anal plate to be very large, the dextral plate much the larger, with periphery rounded, bearing along its ventral margin numerous spiniform hairs and near the distal portion of this margin with a small, irregular, chitinous area, flanked by a chitinous spine directed distad. In the entire Paraguayan series this spine, though variable in heaviness and length, is free and averages heavier than in the Argentinian material showing that condition. In other Argentinian specimens the spine is indicated only as a sharp, slender, chitinous projection along the external margin of the subchitinous area, which is not free. It would appear to be true that the Paraguayan material shows incipient racial differentiation, but this has not, in our opinion, yet reached either sufficient degree or stability to warrant nominal recognition.

Comparison of the females before us, with Giglio-Tos' description of *Loboptera borellii*, shows that name to be based on material representing that sex of the present species.

MEASUREMENTS (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Sapucay, Paraguay (10)	16–17	4–4.2	5.5–5.9	16.7–17.3	5–5.5
Carcaraña, Argentina (9)	12–15	3.2–3.8	4.4–5	14–16.7	4.1–5.3
♀					
Tucuman, Argentina (3)	17–17.2	5–5.3	7.3–7	5–5.1	3.3–3.4
Carcaraña, Argentina (4)	14–15.6	4.3–4.5	5.9–6.2	3.6–4.7	2.8–3
Cordoba, Argentina	14.3	4.3	6	3.9	2.9

The elongate triangular, pad-like, lateral tegmina of females of the present species show a differentiation in this sex somewhat similar to that developed in *I. deropeltiformis* (Brunner). These species, however, do not belong to the same species group, as stated by us in 1917.[91] One striking feature of difference between the females of these species is that in those of *ignobilis* vestigial wings are present as minute pads beneath the apices of the tegmina, their very apices alone sometimes projecting and scarcely extending beyond the caudal margin of the metanotum.

The Gran Chaco specimens average large for the species, all but one having the pronotum solidly blackish brown. A single specimen has the pronotum dull mahogany red, becoming bay caudad; the tegmina, as in the others, chestnut tinged with bay proximad.

The individuals in the Icaño series average smaller, all having the pronotum solidly colored, blackish brown to chestnut brown, the tegmina agreeing with the pronotum in coloration except in two, which have the pronotum very dark but these organs deep chestnut.

Ischnoptera carcarana new species. Plate XI, figures 1, 2 and 3.

This is a small species, showing, however, closer relationship to the much larger *I. ignobilis* Saussure than to the numerous other small species of the genus.

The general coloration is darker than in *ignobilis*; the limbs strikingly bicolored, as is sometimes the case in that species. The concealed male genitalia are distinctive, while in the brachypterous males and the females the triangular lateral tegminal pads are smaller than in females of *ignobilis* and wing pads are not present.

A feature which we have never hitherto met with in studying the Blattidae is the complete and non-intergrading dimorphism developed in the male sex of this species. Two males before us have fully developed tegmina and wings. Three males show the general contour, tegmina represented by minute lateral pads and complete absence of wings, such as is true for the two females at hand.

Though certain species are known to develop all degrees of tegminal and wing reduction, from a fully developed to a much reduced type, it would appear unlikely that intermediate conditions occur in males of *carcarana*, so extreme and clear cut are the macropterous and brachypterous conditions shown. The brachypterous type, in fact, shows for both sexes a retention in the adult con-

[91] Mem. Am. Ent. Soc., No. 2, p. 62.

dition of many features of the early stages. The macropterous males show the usual differentiation from the early stages developed by adults of the normal macropterous species of *Ischnoptera*.

The close agreement of the brachypterous males and females offers ample evidence that they represent a single species. The macropterous males are assigned to the same species through their close similarity in genitalic characters, limb armament and coloration, the differences shown being wholly attributable to the factors discussed above.

Type: ♂; Carcaraña, Santa Fé, Argentina. [Hebard Collection Type no. 704.]

Size small, form rather slender for the genus. Interocular space broad, as wide as that between the antennal sockets. Ocellar spots moderately large, though small and poorly defined for the genus, the area which they occupy not sharply delimited from the interocular-ocellar and rounding into it. Maxillary palpi with fourth joint three-quarters as long as third, third joint three-quarters as long as the elongate fifth joint. Latero-caudal sulci of pronotal disk deep and strongly defined. Tegmina and wings extending well beyond the cercal apices. Wings with a small intercalated triangle, ulnar vein with (3) incomplete and (1) complete branches. Dorsal surface of abdomen specialized as characteristic of genus. Supra-anal plate symmetrical, trapezoidal with angles rounded, width between cerci about twice length, surface weakly concave except above cercal bases and meso-distad on each side where it is weakly convex, distal margin transverse, showing weak lateral convexity and very broad and weak median emargination, so that a sub-bilobate condition is developed; ventral surface with a very delicate transverse ridge between cercal bases and supplied distad with elongate hairs. Paired plate beneath supra-anal plate developed into very large, flattened lobes; the sinistral forming an unarmed transverse ridge toward its dorsal margin, the dextral with a heavier transverse ridge mesad, this ridge, as well as the portion of the plate ventrad, armed with a number of minute but stout spines. Titillator elongate and very slender, widening slightly before the aciculate apex but unspecialized. Subgenital plate with surface strongly convex, except in produced area where it is weakly concave; sinistral margin oblique and rather strongly concave to median portion, dextral margin oblique and more broadly concave a greater distance, the portion of the margin between being short, straight, transverse. Sinistral style situated on sinistral margin mesad of the cercus, simple, cylindrical, weakly tapering to the sharply rounded apex, with shaft weakly decurved, covered with coarse hairs as is the subgenital plate. Dextral style situated mesad on the short, transverse distal margin, very similar but slightly shorter, with decurvature slightly greater and apex slightly blunter

and armed with minute spines. Armament of limbs as characteristic of the genus. Four proximal tarsal joints supplied distad with small but readily observed pulvilli. Moderately well developed arolia present between the slender, simple, symmetrical tarsal claws.

Allotype: ♀; Buenos Aires, Buenos Aires, Argentina. [Paris Museum.]

Agrees with macropterous male type except in the following characters. Size larger, form broader. Interocular space distinctly wider than that between antennal sockets. Ocellar spots smaller, ocellar areas not differentiated. Pronotum with latero-caudal sulci of disk obsolete; greatest width at latero-caudal angles; caudal margin truncate, very broadly convex, transverse. Tegmina minute, rounded triangular, broad, lateral pads, extending only slightly beyond caudal margin of mesonotum, but with venation distinct. Wings absent. Supra-anal plate slightly less than half as long as its basal width, triangularly produced with apex sharply rounded. Subgenital plate convex, with free margin broadly convex. Limbs slightly heavier.

Three brachypterous males, which we have discussed above, agree in all but genitalic features with the allotype, except that the interocular space is only slightly wider than that between the antennal sockets.

Head shining blackish, ocellar spots buffy, palpi blackish chestnut brown, mouth-parts cinnamon brown. Pronotum solidly blackish. Tegmina of male blackish and opaque proximad, weakening mesad, becoming translucent tinged with prouts brown, and transparent distad, very weakly tinged with prouts brown, as is the area of the dextral tegmen which is concealed when at rest. Tegmina of female blackish and opaque. Body, cerci, coxae and femora blackish chestnut brown. Tibiae and tarsi tawny.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Carcaraña, *type*	10	2.9	3.7	10.3	3
Carcaraña, *paratype*	——	2.7	3.9	2.1	1.8
Rosario, *paratype*	11.3	2.9	3.8	10.3	3.1
Buenos Aires, *paratype*	9.6	2.8	4	1.9	1.9
Buenos Aires, *paratype*	10.4	3	4.2	2.1	1.85
♀					
Buenos Aires, *allotype*	12.8	3.6	4.9	2.3	2
Buenos Aires, *paratype*	11.3	3.3	4.4	2	1.7

Specimens Examined: 13; 5 males, 2 females and 6 immature individuals.[92]

[92] Two immature individuals from Montevideo, Uruguay, are before us, which represent this or a very closely related species. They differ from the Carcaraña juveniles in having the limbs almost unicolorus, the tibiae distad and the tarsi being only slightly less dark than the other portions, which are black.

Carcaraña, Santa Fé, Argentina, 2 ♂, *type* and *paratype*, 4 juv. ♂, 2 juv. ♀, [Hebard Cln.].

Rosario, Santa Fé, Argentina, (H. Stempelmann,) 1 ♂, *paratype*, [Hebard Cln.].

Vicinity of Buenos Aires, Buenos, Argentina, February, 2 ♂, 2 ♀, *allotype* and *paratype*, [Paris Museum].

Ischnoptera argentina new species. Plate XI, figures 4, 5 and 6.

This species is very closely related to *I. rufa* (De Geer), differing in important features of the male genitalia, the distinctly less reddish general coloration of the males and differently shaped female supra-anal plate.[93]

It is probable that it was the present, or a related undescribed speces, which Giglio-Tos has recorded as *rufa* from San Lorenzo, Argeintina and San Francisco and Caiza, Bolivia.[94]

Rehn's records of *rufa* from Misiones, Argentina, are based on very light specimens of *I. ignobilis* Saussure.[95]

Type: ♂; San Nicolas, Buenos Aires, Argentina. November 5, 1897. [Hebard Collection Type no. 671.]

Size medium large, form moderately stout. Head with interocular space appreciably narrower than that between the ocelli, (varying in male paratypes to nearly that width). Ocelli distinct, flattened surfaces of ocellar areas slanting rather strongly mesad, very slightly more so than in *rufa*. Maxillary palpi rather short. Pronotum with discal sulci decided. Tegmina and wings elongate, more so than in *rufa*, much as in *I. angustifrons* Hebard. Supra-anal plate produced; lateral margins weakly convergent, distal margin transverse, three-quarters length of plate; surface subchitinous in a large transverse oval, just proximad of distal margin; ventral surface with very short, stout bristles, near sinistral margin and on a moderately prominent convex area adjacent to the dextral margin of the subchitinous area. Paired plate beneath supra-anal plate specialized: at base of sinistral style produced mesad in a chitinous recurved spine, the dorso-proximal portion of which is subchitinous; at base of dextral style produced mesad in a heavy shafted, chitinous spine, over twice as long, directed caudad and then curving broadly inward to its aciculate apex. Titillator with apex similarly special-

[93] Though the female supra-anal plate varies in having the lateral margins straight convergent to rather broadly concave convergent in *rufa* (upon which apparent difference was based Saussure's *consobrina*, a synonym of *rufa occidentalis* Saussure), the lateral emargination of this plate shown by females of *argentina* is of a different quality and much more decided than is shown by any of the large series of the females of the races of *rufa* before us.

[94] Boll. Mus. Zool. Anat. comp. Univ. Torino, XII, No. 302, p. 5, (1897).

[95] Proc. Acad. Nat. Sci. Phila., 1913, p. 276, (1913); ibid., 1915, p. 272, (1915).

ized to that of *rufa*, but shorter and proportionately broader. Subgenital plate strongly asymmetrical as characteristic of genus, much as in *rufa* except that the larger style is slightly heavier, less than three times as broad as long and not twice as long (varying in the series to nearly twice as long) as the unarmed sinistral style.

Allotype: ♀; same data as type. [Hebard Collection.]

Similar to male in ambisexual characters except those of coloration. Size larger, form appreciably broader with pronotum more ample. Head with interocular space slightly narrower, (varying in the series to slightly wider) than that between the ocelli. Pronotum with discal sulci weak. Tegmina and wings broader than in male, surpassing the cercal apices (to different degrees in the series but never by as much as in the opposite sex). Supra-anal plate with lateral portions of free margin very strongly convergent and broadly convex to median produced portion, this portion with margin convex, nearly forming a semicircle (one paratype shows slightly greater convexity at the apex than elsewhere in the margin of the produced portion). Subgenital plate convex, free margin broadly convex, except below cerci, where it is broadly concave.

Measurements (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Paraguay	13	3.7	4.6	16.2	4.8
San Nicolas, Argentina, *type*	14.3	3.7	4.8	15.9	7.4
San Nicolas, Argentina, *paratypes* (3)	13–15	3.6–4.1	4.7–5.7	15.8–16	4.6–5
Carcaraña, Argentina	12.5	3.4	4.7	15.7	4.7
Cordoba, Argentina	12.5	3.2	4.6	15	4.6
♀					
San Nicolas, Argentina, *allotype*	18	4.7	6	17.8	5.2
San Nicolas, Argentina, *paratypes* (10)	15–18.7	4–5	5–6.2	15.5–16.8	4.4–5.2
Carcaraña, Argentina (2)	14.8–16.7	3.8–4.3	5.1–5.4	15.7–17.2	4.7–5.2
Icaño, Argentina	16.3	4.7	6.1	17.3	5.2

Coloration. Male. Head with vertex and inter-ocular-ocellar area auburn, ocelli warm buff, other portions cinnamon-buff showing a very faint tawny tinge. Antennae with proximal joints cinnamon-buff, remaining portions bister. Pronotum light ochraceous-tawny. Tegmina ochraceous-buff, tinged with tawny except in marginal fields. Dorsal surface of abdomen blackish chestnut brown. Ventral surfaces of thoracic segments and all of limbs cinnamon-buff showing a very faint tawny tinge, spines tawny. Ventral surface of abdomen cinnamon brown, gradually deepening to blackish chestnut brown laterad and distad.

Female similarly colored except that the pronotum is tawny, the tegmina tawny, except in marginal field, which is ochraceous-tawny. The series of females at hand shows, a considerable amount of intensification and recession of color, all, however, being more tawny

than the more uniformly colored males. As a result, there is a color contrast between the sexes, a condition which does not occur in *rufa*. In the maximum intensive female (Carcaraña) the vertex to below the ocelli is rich deep chestnut brown. The pronotum is similarly colored, becoming almost black in the mesal portion. The tegmina are ochraceous-tawny, weakly suffused with chestnut brown proximad, with marginal field buckthorn brown showing a weak tawny tinge.

Specimens Examined 19; 7 males and 12 females.

Paraguay, 1 ♂, [Hebard Cln.].

Colonia Florencia, Rio Tapenaga, Chaco, Argentina, 1 ♂, [Paris Museum].

San Nicolas, Buenos Aires, Argentina, November 5, 1897, 4 ♂, 11 ♀, *type, allotype, paratypes*, [Hebard Cln.].

Carcaraña, Santa Fé, Argentina, 1 ♂, 2 ♀, (1 with ootheca), [Hebard Cln.].

Icaño, Santiago del Estero, 1 ♀,]Paris Museum].

Cordoba, Cordoba, Argentina, (F. Schulz), 1 ♂, [Hebard Cln.].

Ischnoptera bilunata Saussure.

1869. *I[schnoptera] bilunata* Saussure, Rev. et Mag. de Zool., (2), XXI, p. 111. [♂; Chiquitos, [Bolivia].]

Sapucay, Paraguay, February 10, 1901, (W. T. Foster), 1 ♂,[96] [U. S. N. M.].

Gran Chaco, Argentina, 2 ♀, [Paris Museum].

Colonia Florencia, Rio Tapenaga, Chaco Argentina, 1 ♂, 1 ♀, [Paris Museum.].

La Palisa del Bracho, Laguna Mamaita, Santiago del Estero, 1 ♂, 1♀, [Paris Museum].

Troncal, Santiago del Estero, 1 ♀, [Paris Museum].

Icaño, Santiago del Estero, 1 ♂, 1 ♀, 1 juv. ♂, [Paris Museum].

Las Garzas, Rio Las Garzas, Santa Fé, Argentina, 2 ♀, [Paris Museum].

Carcaraña, Santa Fé, Argentina, 4 ♂, 1 ♀, [Hebard Cln.].

Comparison has been made with a specimen from Santa Cruz, Bolivia, in the Academy collection.

Ischnoptera litostylata new species. Plate XI, figures 7 and 8.

This diminutive species would appear to be a paler and smaller type, related to *I. saussurei* and *I. icano* here described. Closer examination shows, however, that it belongs to a distinct phylum of

[96] Bearing label "*Blattella germanica*, ♀" and so recorded by Caudell, Jour, N. Y. Ent. Soc. , XII, p. 183, (1904).

the small species of the genus, particularly distinctive in having the styles of the male subgenital plate simple, straight, cylindrical and virtually unarmed.

As we have elsewhere noted, a great number of small species of the genus exist, divisible by color features and pattern into only a few very large groups. The specialization of the male genitalia is distinctive in these species, often showing an astonishingly intricate development. Females are ,however, exceedingly difficult ot separate and should never be recorded as this or that species without the aid of some definite sex correlation.

Type: ♂; Las Garzas,[97] Rio Las Garzas, Santa Fé, Argentina. [Paris Museum.]

Size small, smaller than in *saussurei* or *icano*, form moderately slender. Interocular space very broad, slightly wider than that between the large ocelli, four-fifths as wide as that between the antennal sockets. Ocellar areas, maxillary palpi, few microscopic hairs of pronotum and tegmina, tegmina, wings and specialization of dorsal surface of abdomen as described for *icano* on page 276. Eighth tergite with caudal margin not as decidedly concave as in that species. Supra-anal plate nearly symmetrical, length approximately half basal width, surface very weakly convex in all but small latero-proximal portions, lateral margins straight and moderately convergent in brief portions to beyond cercal bases, thence less strongly convergent and feebly convex to distal portions, this portion broadly and weakly bilobate, the dextral slightly broader than the sinistral lobe, the median emargination thus formed broadly obtuse-angulate and rounded. Ventral surface of supra-anal plate with a small but heavy conical projection, slightly mesad of the base of the sinistral cercus; with a large, heavy tuft of agglutinated, chaetiform spines, which curve sinistrad, situated a brief distance before the base of the distal emargination, and with the dextral margin somewhat thickened ventro-proximad and armed with chaetiform spines. Paired plate beneath supra-anal plate large.[98] Subgenital plate rather decidedly convex laterad; sinistral margin nearly transverse to median production, a brief distance before that supplied with an elongate, slender, straight, cylindrical style, over four times as long as broad; dextral margin moderately oblique produced, broadly convex to median production, that area very small, about twice as broad as long, with margin broadly convex sinistrad to the rectangular, sharply rounded dextral angle, before which is situated the dextral style, slightly inset, but in every other way similar to the sinistral style.[99] These styles are virtually un-

[97] Twenty five kilometers west of Ocampo.

[98] In greater part hidden in the specimens at hand.

[99] In the paratype these styles average even longer, fully five times as long as board.

armed, though one or two minute spines may be discerned dorad near their apices. Armament of limbs as characteristic of genus. Pulvilli, tarsal claws and arolia as described for *icano* on page 276.

Head auburn, shading ventrad to buffy, ocelli light buff. Antennae buffy proximad, shading rapidly to dresden brown. Palpi warm buff, with distal joint slightly darkened. Pronotum ochraceous-buff, weakly translucent cephalad and laterad, disk very faintly tinged with ochraceous-tawny except latero-caudad, where this becomes slightly heavier. Tegmina strongly translucent, ochraceous-buff, very faintly tinged with ochraceous-tawny, except in marginal field; veins not darkened. Wings transparent, even more weakly tinged with the same coloration, area of costal veins not darkened. Dorsal surface of abdomen buffy proximad, marbled with cinnamon-brown meso-distad, solidly cinnamon-brown distad. Cerci cinnamon-brown, becoming slightly paler distad. Limbs ochraceous-buff, the spines ochraceous-tawny. Ventral surface of abdomen cinnamon-brown.

The Paraguayan male is slightly darker, the pronotal suffusion slightly heavier and the proximal portions of the tegmina more strongly tinged with ochraceous-tawny.

Length of body[100] 9.3–9.5, length of pronotum 2.4–2.4, width of pronotum 3–3.1, length of tegmen 9–9.2, width of tegmen 2.9–3 mm.

In addition to the type, a paratypic male from Sapucay, Paraguay, collected in October, by W. T. Foster and belonging to the United States National Museum, has been studied.[101]

Ischnoptera saussurei[102] new species. Plate XI, figures 9 and 10.

It is certain that Saussure's *Blatta fusca*, described in 1869,[103] represents this or a closely related species. That name is preoccupied by *Blatta fusca* Thunberg, 1784. As a result we here describe *saussurei* in full, the insect requiring a new name if not actually representing a new species.[104] The importance of the male genitalic development was not recognized at the time Saussure described *fusca* and it will, as a result, be necessary to examine the type before that name can be definitely placed.

The present species agrees closely with *I. icano* here described on

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[100] The measurements of the type are given first.

[101] This specimen was recorded as *Blattella germanica* by Caudell, Jour. N. Y. Ent. Soc. XII, p. 183. (1904).

[102] In honor of that illustrious Orthopterist, Henri de Saussure.

[103] Rev. et Mag. de Zool., (2) ,XXI, p. 110. Described from Argentina, later given as Corrientes, Argentina.

[104] Rehn suggested that *fusca* might prove to be a synonym of *I. marginata* (Brunner) before the now large series of this section of the genus in the unstudied collections had been assembled. At that time it was supposed that the number of species, included in this section of the genus *Ischnoptera*, was much smaller than we now know to exist. Proc. Acad. Nat. Sci. Phila., 1915, p. 272, footnote 4.

page 276, differing signally only in the male genitalic specialization.

Type: ♂; Carcaraña, Santa Fé, Argentina. [Hebard Collection, Type no. 752.]

Size small, form moderately slender. Interocular space, ocellar areas, maxillary palpi, intercalated triangle of wings, dorsal surface of abdomen, titillator, armament of limbs, pulvilli, tarsal claws and arolia as described for *icano*. Latero-caudal sulci of pronotal disk moderately decided. Tegmina and wings fully developed, extending considerably beyond the cercal apices. Supra-anal plate symmetrical, two-fifths as long as basal width, brief lateral margins nearly straight and almost transverse to within cercal bases, the remaining produced portion symmetrically trapezoidal with angles broadly rounded, its surface broadly convex, weakly chitinous meso-distad, the latero-caudal angles thickened and well-supplied on their ventral surfaces with spiniform hairs directed cephalad, the dextral margin of this production mesad produced ventrad in a large, rounded lobe, its caudal margin also supplied with spiniform hairs directed meso-caudad. Within the anal chamber the socket of the sinistral cercus is produced mesad in a minute conical projection; adjacent to the dextral cercus the corresponding section is produced in a slender finger, which is directed mesad and then curves, with considerable angulation, ventrad, its apex armed with a few very minute spines. Paired plates beneath supra-anal plate developed into large lobes, the sinistral plate extending two-thirds the distance to the dextral cercus but more irregular and not as strongly or evenly swollen as in *icano*. Subgenital plate with surface supplied rather heavily with microscopic hairs, strongly convex, free margin thickened sinistro-proximad and lying just outside the sinistral cercal base, briefly inbent dextro-proximad beneath the dextral cercus, sinistral margin very broadly concave and showing very weak obliquity to the dextral style, which is situated a brief distance mesad of the cercus, dextral margin broadly convex to dextral style, where it forms an acute angulation, being very briefly directed caudad to base of the style. Dextral style heavy, curving sinistrad from its thickened base, two and one-half times as long as its basal width, tapering to its blunt apex, with entire dorsal surface thickly supplied with minute spines. Sinistral style on sinistral margin a distance equal to its basal width from dextral style, tapering and curved weakly dextrad beyond its slightly thickened base, only slightly shorter but decidedly less heavy than dextral style and unarmed.[105]

Allotype: ♀; same data as type. [Hebard Collection.]

Agrees closely with male in all ambisexual characters, differing in the following respects. Head slightly broader, the interocular

[105] Compared with *icano*, the marginal contour of the subgenital plate at the styles and their general structure is found to be very similar. In *saussurei* the styles are appreciably heavier.

space four-fifths as wide as that between the slightly less prominent ocelli, but fully two-thirds that between the antennal sockets. Supra-anal plate half as long as distance between cercal bases, produced and nearly semicircular between these, subchitinous in distal portions. Subgenital plate short, rather decidedly convex, free margin broadly and nearly evenly convex.

Coloration as described for *icano*. The male type has the mediolongitudinal paler streak of the pronotum even more suffused, while the allotype has this marking nearly obliterated. In the male type the coxae are less darkened and the tegmina are more evenly suffused, while in the female allotype the coloration is darker. These features are due to intensification and recession in coloration and it would appear that in color features *saussurei* and *icano* are similar.

Length of body ♂ 10.2, ♀ 11[106]–10.7; length of pronotum ♂ 2.7, ♀ 3.1–2.9; width of pronotum ♂ 3.6, ♀ 4–3.8; length of tegmen ♂ 12, ♀ 12.3–11.8; width of tegmen ♂ 3.7, ♀ 3.9–3.7 mm.

In addition to the type and allotype, a paratypic female, bearing the same data, is before us.

Ischnoptera icano new species. Plate XI, figures 11, 12 and 13.

This species is very closely related to *I. saussurei* here described, showing, however, distinctive features in the male genitalia.

Of the small brown species of the genus, with pronotum margined laterad and cephalad with buffy, five distinct species are before us from the Argentine and Paraguay. Recent studies have shown that an enormous number of forms belonging to this section of the genus occur in tropical and subtropical America, frequently separable on male genitalic characters alone, these parts, however, often showing an intricacy of specialization of astounding degree.

Type: ♂; Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. [Paris Museum.]

Size small, form moderately slender. Interocular space moderately broad, four-fifths as wide as that between the large ocelli, nearly half that between the antennal sockets. Flattened surfaces of ocellar areas forming a rather blunt angle with the interocellar area. Maxillary palpi short, fifth joint very slightly longer than third, the fourth two-thirds as long as the third joint. Latero-caudal sulci of pronotal disk very decided. Microscopic hairs scattered over lateral portions of pronotum and proximal portions of tegmina. Tegmina and wings fully developed, extending a short distance beyond apices of cerci. Wings with a moderately well-developed intercalated triangle. Dorsal surface of abdomen specialized as is characteristic of the genus, eighth tergite with caudal margin

[106] The measurements of the allotype are here given first.

rather strongly concave. Supra-anal plate nearly symmetrical, slightly over half as long as basal width, brief lateral margins weakly convex and almost transverse to median produced portion; this portion strongly convex, the convexity extending to the base of the plate, the free lateral margins consequently curled downward, rounding distad into the transverse, subchitinous distal margin, this portion as long as its basal width, tapering evenly and gently distad where it is supplied with a few, elongate, scattered hairs; ventral surface unspecialized but furnished thickly at the disto-lateral rounded angles of the produced portion with minute spiniform hairs, these slightly the heavier on the dextral side and there extending to the base of the produced portion. Within the anal chamber, adjacent to the sinistral cercus, the socket is developed in a minute rounded lip without production, adjacent to the dextral cercus the corresponding section is produced in a triangular projection, twice as long as its basal width, the caudal surface of which is very deeply concave. Paired plates beneath supra-anal plate developed into large lobes, apparently unarmed; the sinistral plate expanding mesad into a very large rounded lobe, which extends two-thirds the distance to the dextral cercus. Titillator with apex simple, aciculate. Subgenital plate strongly convex, with surface supplied rather heavily with microscopic hairs, lateral margins consequently dorsal in position, straight produced, then curving broadly ventrad, so that the margin beyond in dorsal aspect is transverse; internal surface toward free margins and styles as hairy as external surface. Sinistral style a stout, straight, cylindrical process, tapering, slightly shorter than dextral style. Dextral style heavier, springing from a minute offset of the margin, curved weakly sinistrad with a weak median angulation, proximal half stout and slightly tapering, distal half more strongly tapering to the apex, which, like the dorsal portion of the distal half, is armed with minute spines. Armament of limbs as characteristic of the genus. Four proximal tarsal joints supplied ventro-distad with small but readily observed pulvilli. Moderately well developed arolia present between the bases of the slender, simple, symmetrical tarsal claws.

Head auburn, shading to buffy on mouthparts; ocelli warm buff. Antennae buffy proximad, shading rapidly to dresden brown. Distal joint of palpi prouts brown. Pronotum shining, auburn, with a medio-longitudinal suffused tawny line and cephalic and lateral margins narrowly translucent buffy, caudal margin tawny, these paler marginal portion not sharply defined. Tegmina translucent, light chestnut brown with costal field dark chestnut brown in inner half and warm buff in half toward costal margin, costal veins distinctly darker than intervening areas. Wings very weakly suffused with brown, area of costal veins darker, particularly the veins themselves. Dorsal surface of abdomen buffy proximad, the greater portion laterad and distad chestnut brown. Cerci chestnut brown.

Cephalic coxae proximad and proximal half of median and caudal coxae blackish chestnut brown, remaining portions of limbs buffy with spines tawny. Ventral surface of abdomen chestnut brown, shading to ochraceous-tawny meso-proximad.

It is to be noted that the coloration of *I. panamae* Hebard, *I. tolteca* Saussure and *I. nana* Saussure and Zehntner, shows close agreement to that of this species.

Length of body 11.2, length of pronotum 2.7, width of pronotum 3.4, length of tegmen 11.1, width of tegmen 3.3, length of cercus 2.2, length of caudal femur 3.8, length of caudal metatarsus 1.9, length of succeeding caudal tarsal joints 1.8 mm.

In addition to the type, two paratypic males are before us from La Palisa del Bracho, Laguna Mamaita, Santiago del Estero, Argentina.

Pseudomops neglecta Shelford.

1906. *P[seudomops] neglecta* Shelford, Trans, Ent. Soc. London, 1906, p. 256. [♀; Rio Grande do Sul, Brazil.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, 1 ♂.

Gran Chaco, Argentina, 1 ♂.

Icaño, Rio Salado, Santiago del Estero, Argentina, 1 ♂, 2 ♀.

Averias, Rio Salado, Santiago del Estero, Argentina, 1 ♀.

Las Garzas, Rio Las Garzas, Santa Fé, Argentina, 1 ♂, 3 ♀.

NYCTIBORINAE.

Pseudischnoptera rhabdota[107] new species. Plate XI, figures 15, 16 and 17.

This handsome insect is structurally very similar to *P. lineata* (Olivier); differing only in the narrower interocular space, the very broadly and weakly convex pronotal disk, which is flat in that species, and specialization of the meso-distal portion of the male supra-anal plate. The coloration and color-pattern of tegmina and wings is very distinctive in this insect, however, and very different from the striking type shown by *lineata*.

Type: ♂; Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. [Paris Museum.]

Size small, form relatively slender for the subfamily. Head elongate, flattened; eyes not extending ventrad of the antennal sockets laterad; inter-ocular space moderately broad, two-fifths as wide as that between the antennal sockets; ocellar spots small but distinct. Maxillary palpi short, third joint as long as the decidedly expanded fifth joint; fourth very slightly over half as long, expanding strongly distad, with dorsal surface suddenly minutely impressed at the dis-

[107] From ῥαβδόωτή=streaked.

tal margin. Pronotum with disk broadly and very weakly convex, the comparatively narrow lateral portions weakly declivent; pronotum triangular in shape with angles broadly rounded; the lateral margins diverging from the head to the latero-caudal angles, these and the transverse caudal margin nearly straight, very feebly convex; greatest width at latero-caudal angles. Tegmina and wings fully developed, extending well beyond cercal apices, narrower but showing similar venation to those of the species of *Nyctibora*. Dorsal surface of abdomen with median segment showing transverse median depression, formed by the fusion of two circular depressions, this depression partially filled with a pale substance which, in drying, has become hard, like shellac. Fourth, sixth, and eighth tergites, with latero-caudal angles alone produced and rounded. Supra-anal plate bluntly triangularly produced, median portion depressed, this area forming a distal longitudinal subchitinous area terminated distad as the broadly convex apex of the plate, the chitinous portion on each side terminating in a large, stout, straight, elongate spine, directed caudad.[108] Subgenital plate deplanate, with lateral portions narrowly bent dorsad as far as insertion of styles, the lateral portions straight in ventral aspect and moderately convergent to the broad and very weakly convex apex; sinistral style proximad, springing from a point beneath base of sinistral cercus, straight, cylindrical, tapering to its rounded apex and slightly over three times as long as its basal width, lying along margin of plate; dextral style springing from dextro-distal angle, similar, but only half as large and only slightly over twice as long as its basal width, likewise lying along margin of plate. Cephalic femora armed in distal third of cephalic margin with (five to ten in the series) small, stout spines, terminating in three large spines, more elongate in increasing ratio distad; ventro-caudal margin armed in corresponding portion with (three or four) heavy, elongate spines. Ventro-cephalic margins of other femora armed only distad with (one to five in the series) small, stout, irregular spines; ventro-caudal margins well-supplied with stout and elongate spines. Caudal metatarsus unarmed; four proximal tarsal joints supplied with large pulvilli. Large chitinous arolia present between the nearly symmetrical, simple tarsal claws. Important features of coloration given below.

Allotype: ♀ ; same data as type. [Paris Museum.]

Agrees closely with male except in the following characters. Eyes smaller, but with interocular space no wider. Pronotum broader, with lateral margins slightly more convex. Tegmina and wings reduced, reaching meso-distal portion of abdomen. Abdomen with dorsal surface unspecialized. Supra-anal plate hairy, half as long as width between cerci, produced between these, the

[108] These spines similar to those found in *lineata*, but with depressed and subchitinous intervening area distinctive.

margins there broadly convex-convergent to a small distal emargination. Subgenital plate large, convex; margins below cerci concave, broadly convex between these points.

Coloration of sexes similar. Entire insect shining blackish brown, except as follows. Eyes tawny olive, ocellar spots buffy. Antennae and limbs paling to chestnut brown distad. Pronotum margined cephalad and laterad with a band of warm buff, this band narrowest cephalad, the immediate lateral margins narrowly blackish brown. Tegmina translucent except in darker portions; marginal field warm buff, the cingulate margin blackish brown paling to ochraceous-tawny distad; humeral trunk suffused with blackish brown in proximal two-thirds, remaining portions ochraceous-tawny with interval between costal veins and veins of anal and proximal portion of discoidal field buffy. Frequent individuals are more strongly ferruginous in area between the humeral trunk and sutural margin of the tegmina. Wings transparent, anterior field tinged with ochraceous-tawny, the veins and entire area of costal veins of this color; radiate field weakly tinged with ochraceous-tawny.

MEASUREMENTS (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Icaño, Argentina, *type*	20.5	4.9	6.7	19	6
Icaño, Argentina, *paratypes* (4)	19.3–22	4.3–4.8	6.2–6.8	18–19.6	6–6.3
Barrancas, Argentina	17.8	4.8	6.6	18.7	6.2
♀					
Icaño, Argentina, *allotype*	19.2	5	6.8	12.2	5.1
Icaño, Argentina, *paratype*	17	4.8	6.7	11.8	5.7
Barrancas, Argentina (3)	19.8–20	4.7–5.3	6.5–7	12.7–13.1	5.1–5.8
Troncal, Argentina	18.8	4.8	6.8	12.2	5.2

It is of interest to note that, though the adults of this species do not show the microscopic prostrate hairy covering usual in Nyctiborids, that condition is shown, though not strongly, in the immature stage. The immature individual before us has the pronotum marked as in the adults, the mesonotum and metanotum bordered laterad more broadly with buffy, each of these areas crossed by a band of blackish brown, the four larger abdominal tergites with an elongate, narrow, longitudinal marking on each side of buffy, the immediate lateral margins being dark.

Specimens Examined: 14; 7 males, 6 females and 1 immature individual.

Border of Rio Salado, near Icaño, Santiago del Estero, Argentina, 2 ♂, 2 ♀, *type*, *allotype*, *paratypes*,1 juv.

Guarda Escolta, near Icaño, Santiago del Estero, Argentina, 4 ♂.

Barrancas, Banados del Rio Dulce, Santiago del Estero, Argentina, 1 ♂, 3 ♀.

Troncal, Santiago del Estero, Argentina, 1 ♀.

Nyctibora sericea Burmeister.

1838. *Nyctibora sericea* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 501. [Brazil.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, 1 ♀.

The confusion which has existed, concerning the proper name to be used for this species, is pointed out on page 239.

Nyctibora glabra Giglio-Tos.

1897. *N[yctibora] glabra* Giglio-Tos, Boll. Mus. Zool. Anat. comp. Univ. Torino, XII, No. 302, p. 9. [♂, ♀; San Francisco and Caiza, Ecuador.]

Gran Chaco, Argentina, 1 ♂, 1 juv.

Icaño, Santiago del Estero, Argentina, 1 ♂, 2 ♀.

Rio Salado, near Icaño, Santiago del Estero, Argentina, 2 ♀.

Guarda Escolta, near Icaño, Santiago del Estero, Argentina, 13 ♂, 3 ♀, 11 juv.

Barrancas, Santiago del Estero, Argentina, 2 ♀.

Cruz del Eje, Cordoba, Argentina, 3 juv., [Hebard Cln.].

The size variation, shown by the males from Guarda Escolta, is as follows; length of body 22-27.5, length of pronotum 5.3-6.4, width of pronotum 7.7-9, length of tegmen 23.8-29, width of tegmen 7.8-9 mm.

EPILAMPRINAE.

Epilampra cinerascens Brunner.

1865. *E[pilampra] cinerascens* Brunner, Nouv. Syst. Blatt., p. 173. [♂ Brazil.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, 1 ♀, [Hebard Cln.]

The wing coloration is a distinctive feature in the present species. The anterior field is rather strongly suffused with ochraceous-tawny, slightly darkened in proximal two-thirds and particularly in area of costal veins and with a few dark points on the margin distad; the radiate field is weakly suffused with mummy brown, except for a border around the peripheral margin which is weakly suffused with ochraceous-tawny, this border widening toward the anterior field.

Length of body 21, length of pronotum 5.1, width of pronotum 6.7, length of tegmen 17.9, width of tegmen 5.9, length of caudal femur 6.9 mm.

Epilampra heusseriana Saussure.

1864. *Epil[ampra] heusseriana* Saussure, Rev. et Mag. de Zool., (2), XVI. V, p. 321. [[♀], Uruguay.]

Montevieo, Uruguay, 1♂, 1♀, [Hebard Cln.].

This species has been assigned to the genera *Calolampra* and *Audreia*, due mainly to the fact that the type female had short truncate tegmina. Though this is true for the female sex, the male before us is seen to have fully developed organs of flight, and shows no characters which would warrant its being placed other than in the genus *Epilampra*. The sexual diversity here shown is seen to be in a way intermediate between that found in *E. jorgenseni* (Rehn)[109] and the usual condition in the genus in which the sexes agree closely.

The female before us agrees closely with Saussure's figure,[110] except in being more reddish, the ground coloration of pronotum and tegmina being ochraceous-buff, tinged with ochraceous-tawny.

The male shows the correctness of the sex association particularly in many of the delicate features of color-pattern. As it had not been previously recognized, we give the following data as to the coloration of this sex.

Head light ochraceous-buff, occiput with four irregular, vertical, linear suffusions of blackish brown, below these a patch as long as wide, of blackish brown.[111] Antennae ochraceous-buff. Pronotum light ochraceous-buff, with very many microscopic dots of prouts brown, numerous larger though minute dots and a delicate, interrupted lyrate discal pattern of blackish brown. Tegmina transparent light ochraceous-buff, with numerous minute dots (which become smaller distad) and a few flecks of blackish brown, humeral trunk blackish brown to nearly opposite apex of anal field. Limbs light ochraceous-buff; femora margined dorsad with blackish brown, a narrow medio-longitudinal weak suffusion on the cephalic face, both faces with a heavy blackish brown suffusion disto-ventrad; tibiae dark brown in entire ventral half; distal portions of tarsal joints suffused with dark brown.

In the female the abdomen has the caudal margins of the tergites regularly marked with small longitudinal patches of blackish brown, which do not project.[112]

Length of body ♂ 20, ♀ 21.7; length of pronotum ♂ 5.7, ♀ 6.1; length of tegmen ♂ 24, ♀ 7.1[113]; width of tegmen ♂ 6, ♀ 5.5;

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[109] See page 283, footnote 115.

[110] Mém. l'Hist. Nat. Mex., III, pl. II, fig. 24.

[111] In the female this patch is more extensive, fusing with the occipital lines dorsad.

[112] Saussure describes these as "saillies", this may be in error, as our specimens agrees with the description very closely in all other respects. Many species of the genus have longitudinal projections in place of the markings shown by the example before us.

[113] Exposed length, 6 mm.

length of caudal femur ♂ 7.8, ♀ 6.8; length of caudal metatarsus ♂ 3.2, ♀ 3 mm.

The female recorded by Rehn from Pará, Brazil, as this insect, represents a distinct species, having in that sex transversely truncate tegmina and immaculate tibiae.

Epilampra berlandi[114] new species. Plate XII, figures 1 and 2.

This handsome little insect is one of the smaller species of the genus, showing in the male sex affinity to the larger, but in general similarly colored, males of *E. jorgenseni* (Rehn).[115] Compared with the male of that species, the present males are found to differ in the decidedly smaller size, wider interocular space, less produced caudal portion of pronotum, less diaphanous tegmina, with much more numerous and smaller maculations and darker wings, with area of costal veins opaque and very dark. Considering the affinity to *jorgenseni*, we believe that the female of this species will also be found to differ very greatly from the male.

The size, rather depressed form, grayish coloration and shape and marking of the tegmina give the species a much closer superficial resemblance to certain North American species of the Polyphagid genus *Arenivaga* than is shown by any of the other known species of *Epilampra*.

Type: ♂; Icaño, Santiago del Estero, Argentina. December. [Paris Museum.]

Size rather small, form depressed for the genus. Head very slightly projecting beyond the pronotum, considerably depressed; interocular space nearly twice the occipital ocular depth; ocelli very large. Pronotum of the type characteristic for the genus, the surface more flattened and production caudad weaker than is usual, agreeing closely with that of *jorgenseni* except in these respects. Tegmina extending beyond apex of abdomen slightly more than pronotal length, moderately broad, the median half subequal in

[114] Named in honor of Monsieur Lucien Berland, of the Paris Museum, through whose kind coöperation the present collections have been put in our hands for study.

[115] A detailed comparison of the type of *Rhicnoda jorgenseni* Rehn, a female, (described from the Misiones, Argentina, Proc. Acad. Nat. Sci. Phila., 1913, p. 277, fig. 1) and males, including the type of *Epilampra stigmatiphora* Rehn, (described from the Misiones, Argentina, Proc. Acad. Nat. Sci. Phila., 1913, p. 279, fig. 2) convinces us that but a single species is represented, of which the sexes are widely dissimilar. The males show no features which would warrant generic separation from the other species of *Epilampra*. The female, however, is a patelliform type, evidently retaining in the adult numerous features characteristic of the early stages and having tegmina alone represented by small, lateral, triangular pads. As a result the species is recognized as *Epilampra jorgenseni* (Rehn), the first species of the genus known to show wide dissimilarity in the sexes.

width; distal margin arcuate oblique from sutural margin to the well rounded apex, which is situated nearer the costal margin; anal field very elongate pyriform. Wings ample; area of costal veins rather broad, opaque; ulnar vein with (seven) incomplete and (two) complete branches. Abdomen strongly depressed. Supra-anal plate bilobate, with apices rather sharply rounded, length two-thirds distance between cerci. Cerci small, tapering distad, with apical portion very slender. Subgenital plate as characteristic of genus; moderately asymmetrical, lobate; styles very small, straight, simple. Armament of limbs (except that, as in *jorgenseni*, the ventro-cephalic margin of the cephalic femora is armed with one, instead of the usual two, heavy distal spines), pulvilli and arolia as characteristic of *Epilampra*.

Head cream color, the occiput obscurely striate vertically with buffy, with a broad interocular band of blackish mummy brown, which sends a ray ventrad along the ventral margin of each ocellus. Eyes mummy brown. Underparts warm buff, limbs light ochraceous-buff. Pronotum cream color, rather thickly and very minutely dotted with mummy brown, these dots enlarging slightly mesad and forming minute longitudinal maculae on the margin of the caudal production, the disk further marked with minute flecks of prouts brown. All of the pronotal markings are so small that it appears merely more strongly suffused mesad, without noticeable picturing, the sublyrate median pattern being even more obscure than in *jorgenseni*. Tegmina with marginal field opaque, cream color, with very few punctae of mummy brown; other portions translucent, tinged with saccardos umber and thickly flecked with mummy brown, with a few larger flecks meso-distad; humeral trunk to near end of marginal field heavily suffused with mummy brown. Area of dextral tegmen, concealed when at rest, bister, flecked only in its inner portion. Wings with area of costal veins opaque, bister with immediate margin slightly paler, beyond thiswith a few marginal flecks of bister; other portions transparent, tinged with bistre, the veins bister. Dorsal surface of abdomen clay color, shading to bister distad.

Length of body[116] 15.7–15.7, length of pronotum 4.3–4.4, width of pronotum 5.6–5.8, length of tegmen 15.9–16, width of tegmen 5.6–5.6 mm.

In addition to the type, a single paratypic male bearing the same data, two immature males and one immature female from Cruz del Eje, Cordoba, Argentina, in the Hebard Collection, are before us.

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[116] The type measurements are given first.

BLATTINAE.

Blatta orientalis Linnaeus.

1758. [*Blatta*] *orientalis* Linnaeus, Syst. Nat., Ed. X, I, p. 424. [America; the East; Russia; Stockholm, Sweden; Finland.]

Tucuman, Tucuman, Argentina, 1 ♂, [Hebard Cln.].

Buenos Aires, Buenos Aires, Argentina, 2 ♀, [Hebard Cln.].

Periplaneta brunnea Burmeister.

1838. *P*[*eriplaneta*] *brunnea* Burmeister, Handb. Ent., II, Abth. II, Pt. I, p. 503. [♂, ♀; Chile; Demerara (=British Guiana).]

Las Garzas, Rio Las Garzas, Santa Fé, Argentina, 1 ♀.

PANCHLORINAE

Panchlora thalassina Saussure and Zehntner.

1893. *Panchlora thalassina* Saussure and Zehntner, Biol. Cent.-Am., Orth., I, p. 93. [♂, ♀; Guatemala; Santa Catharina, Brazil; La Plata, Argentina.[117]]

Villa Lutecia, near San Ignacio, Misiones, Argentina, January to April, 1 ♂, 2 ♀.

Bella Vista, Rio Parana, Corrientes, Argentina, 1 ♀.

Colonia Florencia, Rio Tapenaga, Chaco, Argentina, 1 ♂.

Barrancas, Banados del Rio Dulce, Santiago del Estero, Argentina, 1 ♀.

Troncal, Santiago del Estero, Argentina, 1 ♀, 1 juv. ♀.

Las Garzas, Rio Las Garzas, Santa Fé, Argentina, 1 ♀.

Tribonium guttulosum (Walker)

1868. *Nauphoeta guttulosa* Walker, Cat. Blatt, Br. Mus., p. 184. [♂, Brazil.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, 1 ♀.

This species appears to be extremely close to *T. conspurcatum* (Burmeister). From Brunner's detailed description of that species, it would appear to differ in the unicolorous black antennae, and in pronotum, the proportions of which are given as 4 by 5.6 millimeters.

Length of body 19, length of pronotum 4, width of pronotum 7.1, length of tegmen 15, width of tegmen 5.6 mm.

Tribonium spectrum (Eschscholtz)

1822. *Blatta spectrum* Eschscholtz, Entomographien, p. 85. [Santa Catharina, Brazil.]

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[117] We here select La Plata, Argentina, as the type locality of this species. It is closely related to *P. cubensis* Saussure and, in the very large series of the genus before us, is recognizable only from material from Paraguay and northern Argentina. The Santa Catharina record may, therefore, represent the same species, but we are confident that that from Guatemala is based on either a misidentification or material incorrectly labelled.

Villa Lutecia, near San Ignacio, Misiones, Argentina, 1 ♂.

On page 242 of the present paper we have compared *T. conspersum* (Guérin and Percheron) with the present species.

BLABERINAE.

Blaptica interior new species. Plate XIV, figure 1.

This species is very closely related to *B. dubia* (Serville), differing in the male sex in the more slender form, in the strikingly smaller pronotum, with lateral portions of cephalic margins not weakly reflexed and lateral margins broadly rounded, showing hardly a trace of the angulation distinctly developed (though to varying degrees) in *dubia*, and in the narrower interocular space. In addition the ventral surface is paler, that surface with subgneital plate and sometimes the preceding segment alone solidly dark, while the dark marking of the pronotal disk is truncate cephalad, ceasing abruptly before the convex section above the head.

Females of these species are very similar, those of *interior* being less robust, with interval between the tegmina decidedly less.

Type: ♂; Cordoba, Cordoba, Argentina. [Hebard Collection, Type no. 672.]

Size rather small for the genus, very small for the Blaberinae; form slender for the genus. Interocular space narrower than in *dubia*, one-third (varying in the series to two-fifths) as wide as the interocellar space. Ocelli large and prominent, each with a circular and similarly subchitinous spot of about half the size immediately ventrad. Maxillary palpi with distal joint very slightly longer than fourth. Pronotum with impressed lyrate pattern of disk and convex area above head as in *dubia*, but differing decidedly in the almost perfectly oval outline, without lateral angles and weakly cingulate, but not moderately reflexed, lateral portions of the cephalic margin. Tegmina elongate and narrow, with margins parallel for a considerable distance; anal field ample and elongate, as in *dubia*. Supra-anal plate broadly truncate, bilobate. Subgenital plate forming an asymmetrical lobe, with two very small, simple styles. Ventro-cephalic margin of cephalic femora supplied with a row of closely placed, moderately elongate, spiniform hairs, terminating in a single large distal spine.[118] Other ventral femoral margins (excepting in many paratypes the entirely unarmed ventro-caudal of the caudal femora, and in this the normal condition in the species) armed with a single large distal spine, the ventro-caudal

[118] This condition is also found in *dubia*, but in that species frequent specimens have one or more short, heavy, proximal spines and two heavy spines distad on the ventro-cephalic margin of the cephalic femur. Variation in that species is decided, as will possibly be found to be true for *interior* also.

margins of the median and caudal femora supplied with elongate hairs. Four proximal tarsal joints with large pulvilli,[119] that of the metatarsus linear in large portion, running to the base; last (fifth) joint with ventral surface subchitinous in a longitudinal, linear area. Tarsal claws heavy, symmetrical, simple; arolium suggested by a very minute chitinous convexity between their bases.

Allotype: ♀; Cruz del Eje, Cordoba, Argentina. [Hebard Collection.]

Very different in general appearance from male. Size larger, form broader. Interocular space narrower than in *dubia*, though much broader than in male, slightly narrower than that between the somewhat less prominent ocelli. Pronotum larger, rather strongly convex to the cingulate lateral margins, which mesocephalad are weakly and narrowly reflexed; margin nearly semicircular to the truncate caudal margin, the latter showing a subobsolete convexity between the shoulders; latero-caudal angles rectangulate and sharply rounded. Tegmina greatly reduced, extending caudad as far as (varying in the series to slightly beyond) caudal margin of median segment, oblique truncate from bluntly rounded apex to near base of sutural margin (often with section in anal field less oblique and showing some convexity); unlike females of *dubia*, separated by a very brief interval (varying to attingent in the series). Abdomen much larger and heavier in structure. Cerci moniliform, very small, projecting only slightly beyond the abdominal outline. Limbs and their armament and specialization similar to male, except that they aresomewhat shorter and heavier.

Coloration of male. Head blackish liver brown, the ocelli and subocellar areas, proximal antennal joint, palpi and mouthparts ochraceous-buff. Pronotum translucent ochraceous-buff; disk blackish prouts brown with flecks of ochraceous-buff mesad,[120] this dark area spreading and including the shoulders and intervening area caudad, becoming deep cinnamon-brown latero-caudad. Tegmina ochraceous-buff in proximal portion of anal field, all of marginal field and more narrowly distad on costal margin, humeral trunk heavily suffused with blackish chestnut brown, this spreading over all portions of the tegmina except those mentioned above, but becoming dilute toward the sutural margin and distad. In one paratype the entire anal field is pale, while in another the dark suffusion is very weak everywhere except toward the humeral trunk. Wings transparent, tinged with dresden brown in anterior field, but opaque, buffy, in area of costal veins, faintly tinged with brown

[119] This and the following features we believe to be of generic rather than specific value.

[120] In the series of paratypes there are individuals with disk lacking pale flecks or showing one or two lateral linear flecks and a single mesal or meso-caudal fleck. In the type there is an additional fleck mesad, while in other paratypes there is a distinct lyrate area of this paler coloration. Intensification and recession of color pattern account for these differences.

in radiate field, veins prouts brown. Dorsal surface of abdomen weakly mottled tawny olive, laterad rather broadly margined on each side with pinkish buff. Underparts and limbs ochraceous-buff, spines blackish becoming russet proximad. Ventral surface of abdomen with each segment flecked laterad with blackish prouts brown, the subgenital plate and meso-caudal portion of preceding sternite entirely of this color, the preceding sternites washed weakly laterad and in an obscure transverse median band with prouts brown.

In the females the coloration is generally similar, the exposed dorsal surface of the abdomen ochraceous-buff, often tinged with tawny, each segment heavily marked with blackish brown except laterad and caudad, frequently with patches mesad on each side and along the median line of the paler coloration, so that in such examples the abdomen shows five distinct longitudinal, pale, interrupted bands.

For purposes of comparison the measurements, in millimeters, for *interior* and *dubia* are given in the following table.

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Blaptica interior					
Gran Chaco, Argentina	30	8.1	11.6	32.8	10
Averias, Argentina	29.8	7.7	10.1	30.7	9.8
Icaño, Argentina	31	8	11.2	34.3	9.7
Icaño, Argentina	30.2	8	11.2	31.7	10
Icaño, Argentina	28	8	11.7	29.7	9.8
Guarda Escolta, Argentina	28.4	8	11.1	30.8	9.8
Cruz del Eje, Argentina, *paratype*	30	8.2	11.4	32.3	10.3
Cruz del Eje, Argentina, *paratype*	33.5	8.2	11.3	32.2	9.8
Cordoba, Argentina, *type*	30	8	11.6	33.5	10.9
Blaptica dubia					
Rosario, Argentina	32.3	9	13	32.5	10.9
Carcaraña, Argentina	32.7	9.9	13.1	33	11.6
San Nicolas, Argentina	28.5	9	11.8[121]	32.5	11.2
San Nicolas, Argentina	34	9.4	13.1	34.2	10.9
San Nicolas, Argentina	31	9.6	13	33.9	11.2
Buenos Aires, Argentina	31	9.1	12.1	33	11.8
Buenos Aires, Argentina	30	9.9	13.5	34.5	11.5
Cordoba, Argentina	35.5	9.1	12.9	32	11
Cordoba, Argentina	34.8	9.7	12.8	32	12

[121] The pronotum is strongly asymmetricalin this specimen, one side being imperfectly developed.

♀	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen	Width of interval between tegmina
Blaptica interior						
Icaño, Argentina	32.3	9.7	13.8	8.7	8.9	.8
Troncal, Argentina	32.7	9.7	13.8	8.7	8.7	.3
Guarda Escolta, Argentina	26.2	8.7	12.7	7.1	7.3	.8
Guarda Escolta, Argentina	30.8	9.2	13.2	7.4	8	.9
Guarda Escolta, Argentina	30.8	9.4	13.7	8.2	8.9	0
Cruz del Eje, Argentina, *paratype*	29.6	9	13.6	8.3	8	1.3
Cruz del Eje, Argentina, *paratype*	30	9.4	13.4	8.9	9	0
Cruz del Eje, Argentina, *allotype*	33.4	10	13.7	9	8.8	.8
Blaptica dubia						
Montevideo, Uruguay	33	10.3	14.9	9.2	7.7	4.2
Montevideo, Uruguay	35.4	10.7	15.8	8.7	7.4	5.5
Carcaraña, Argentina	33.5	9.6	14.3	9	7.4	4
Buenos Aires, Argentina	31.9	9.8	14.2	8.2	7	3.7
Buenos Aires, Argentina	31	10.3	15.2	9	7.9	3.9

Specimens Examined: 55; 15 males, 35 females and 5 immature individuals.

Gran Chaco, Argentina, 1 ♂.

Chaco Santa Festino, Argentina, August to October, 1911, (W. H. Schladitz), 1 ♀. [Hebard Cln.].

Icaño, Rio Salado, Santiago del Estero, Argentina, 4 ♂, 3 ♀.

Averias, Rio Salado, Santiago del Estero, Argentina, December, 1 ♂, 1 juv. ♂.

Paso de Don José, Rio Salado, Santiago del Estero, Argentina, 2 ♀.

Troncal, Santiago del Estero, Argentina, 1 ♀, 1 juv. ♂.

La Palisa del Bracho, Rio Salado, Santiago del Estero, Argentina, December, 4 ♂, 1 ♀.

Guarda Escolta, Rio Salado, Santiago del Estero, Argentina, 1 ♂, 14 ♀. 1 juv. ♀.

Cruz del Eje, Cordoba, Argentina, 2 ♂, 13 ♀, *allotype, paratypes,* 2 juv., 3 oothecae, [Hebard Cln., A. N. S. P., and U. S. N. M.].

Cordoba, Cordoba, Argentina, 1 ♂, *type.*

Buenos Aires, Buenos Aires, Argentina, 1911, (Dr. C. C. Craft; on ship), 1 ♂, [U. S. N. M.].

Blaptica dubia (Serville) Plate XIV, figure 2.

1839. *Blabera dubia* Serville, Hist. Nat. Ins. Orth., p. 78. [♂, Brazil; Buenos Aires, Argentina.]

Montevideo, Uruguay, 2 ♀

Rosario, Santa Fé, Argentina, 2 ♂, 1 ootheca, [A. N. S. P. and Hebard Cln.].

Carcaraña, Santa Fé, Argentina, 1 ♂, 1 ♀, [Hebard Cln.].

San Nicolas, Buenos Aires, Argentina, 3 ♂, [Hebard Cln.].

Buenos Aires, Buenos Aires, Argentina, 2 ♂, 1 ♀, 2 juv., [Paris Museum, A. N. S. P. and Hebard Cln.].

Cordoba, Cordoba, Argentina, 2 ♂, [Hebard Cln.].

The series shows no very decided intensification or recession of color pattern. The paler individuals, however, do not have the pronotal maculation solidly dark; in some, paired buffy flecks occur, in occasional females the face-like marking, developed in certain species of *Blaberus* is shown, while in some males a blurred lyrate pattern is developed.

Blaberus fraternus Saussure.

1864. *Blabera fraterna* Saussure Mém. l'Hist. Nat. Mex., III, p. 241. [♂; South America, (The Antilles, Cuba?).]

Gran Chaco, Argentina, 2 ♂.

Colonia Florencia, Rio Tapenaga, Chaco, Argéntina, 1 ♂, 1 ♀.

Chaco Austral, north of Icaño, Santiago del Estero, Argentina, 2 ♂.

Icaño, Santiago del Estero, Argentina, 4 ♂, 3 ♀.

Rio Salado, near Icaüo, Santiago del Estero, Argentina, 2 ♂, 1 ♀.

La Palisa del Bracho, Rio Salado, Santiago del Estero, Argentina, December, 1 ♂.

The species has previously been recorded from Argentina only from Jujuy, in the province of the same name.

Considerable color variation is shown by the series. In one male and the three females, the dark pronotal marking spreads caudad, covering the shoulders; in but one of these specimens do pale points show mesad in this dark area. In the males the most recessive specimen shows a short medio-longitudinal pale streak and latero-caudad of it two large oblique flecks of the same color in this area. In one male with perfectly shield-shaped pronotal marking, this area is solidly dark. In all, the dark pronotal area is terminated by the caudal margin of the pronotum.

Eublaberus argentinus new species. Plate XIV, figure 8.

This species appears to be nearest *E. immacula* (Saussure and Zehntner), described from a female from Pernambuco, Brazil.

The female at hand differs from the description of that species in the somewhat smaller size, with pronotum solidly suffused, leaving only the lateral marginal portions pale and buffy, not rufescent.

We have found that the species of *Eublaberus* are separable almost entirely on features of coloration and color pattern. We know that coloration is, as a rule, though by no means invariably, unsafe for diagnostic purposes, while color pattern is often subject to decided variation, particularly when marked individual recession or intensification occurs. Thus, in *E. posticus* (Erichson) and *E. biolleyi* (Rehn), the color pattern is decidedly affected by the latter factor, the general type remaining the same.

In *argentinus* we have a form showing the maximum extension of the pronotal dark marking. Recessive examples will probably show reduction of this marking, but we feel satisfied that the material before us does not represent merely an intensive condition of some other described species and we are of the opinion that the pattern shown by less heavily marked individuals of *argentinus* will exhibit distinctive features.

Type: ♀ ; Mistol Passo, near Icaño, Santiago del Estero, Argentina. January and February. [Paris Museum.]

Size and form, average for the genus. Head with interocular space slightly narrower than that between the moderately large ocelli, three-fifths as wide as that between the antennal sockets. Antennae incrassate, moderately pilose. Pronotum with a distinct, rounded angulation at point of greatest width meso-cephalad. Tegmina and wings fully developed, extending beyond the apex of the abdomen a distance approximating the pronotal length. Supra-anal plate delicate, bilobate. Subgenital plate simple, large and chitinous. Ventro-cephalic margin of cephalic femora with (3 to 4) proximal and (1 or 2) distal heavy spines, between which is a fringe of elongate hairs. Ventro-cephalic margin of median and caudal femora armed with a single heavy distal spine. Ventro-caudal margin of cephalic and median femora armed with two heavy, closely placed distal spines. Ventro-caudal margin of median and caudal femora fringed with elongate hairs. Ventral margins of caudal femora unarmed. Median and caudal femora with a heavy, elongate genicular spine. Caudal metatarsus unarmed ventrad, with a large pulvillus, rounded distad, linear and running to near base of this joint; three succeeding tarsal joints with large pulvilli. Tarsal claws simple, symmetrical. Arolia absent.

Head and antennae chestnut brown, eyes prouts brown, ocelli and mouth-parts ochraceous-buff. Pronotum almost solidly blackish chestnut brown, the moderately broad lateral marginal portions apricot yellow. In the less intensively colored paratype the pro-

notum is chestnut brown, deepening to blackish along caudal margin, with flecks of the same latero-cephalad and slightly paler, approaching tawny, in large median portion of this dark area, which runs to the cephalic margin above the head, leaving only the moderately broad lateral marginal portions ochraceous-buff. Tegmina transparent, light ochraceous-buff, humeral trunk chestnut brown to slightly beyond forking of mediastine vein, the humeral vein darkened a brief distance beyond, other veins very weak ochraceous-tawny. Dorsal surface of abdomen buckthorn brown shading to dresden brown distad on each tergite, broadly margined laterad and all but meso-proximal portion of supra-anal plate ochraceous-buff tinged with buckthorn brown. Ventral surface chestnut brown and buffy, ochraceous-tawny with buffy maculations in paratype, ventral surface of abdomen apricot yellow and broadly bordered with chestnut brown, this including all but a median fleck on the subgenital plate, the other sternites very narrowly margined laterad with buffy, in the paratype ochraceous-tawny, the darker lateral markings more suffused and breaking laterad into buffy areas on the proximal sternites. Limbs brussels brown, margins brown in paratype; the spines darker and more reddish.

The measurements for the two females are as follows, those of the type being given first. Length of body 34.7–36.3, width of interocular space 2.3–2.1, length of pronotum 10.2–10.7, width of pronotum 15.3–14.8, length of tegmen 38.3–38.8, width of tegmen 15.2–14 mm.

In addition to the type, a female paratype is before us, taken at La Palisa del Bracho, Rio Salado, Santiago del Estero, Argentina, in December.

CORYDIINAE.

CEUTHOBIA[122] new genus.

This genus is erected to include the Argentinian species *Melestora fulvella* Rehn and *lepta*, here described. With it, the closely allied genus *Ceuthobiella* is compared on page 247.

Genotype.—Ceuthobia lepta new species.

The male sex only is known for the species included.

Generic Description. Size minute, form elongate elliptical, slender when compared with the allied genera. Exposed surface very weakly to moderately supplied with minute erect hairs. Head with interocular area not rugose, distinctly wider than interval between antennal sockets. Pronotum with greatest width meso-caudad and caudal margin very broadly convex; latero-caudal oblique sulci moderately well defined, no trace of medio-longitudinal sulcation. Tegmina with first discoidal sectors longitudinal, but those toward the sutural margin oblique, veins connected by well-defined cross-

[122] From κεύθος and βίοω, in allusion to the secretive habits of the species.

veinlets. Wings with width much greater than half their length; costal veins clubbed distad, ulnar vein unbranched, intercalated triangle moderately large, radiate field folding fan-wise. Dorsal surface of abdomen with median segment specialized mesad. Subgenital plate asymmetrical, but not as strongly so as in *Ceuthobiella* and of a distinct general type. Ventro-cephalic margin of cephalic femora armed with (1 or 2) moderately heavy, elongate spines[123] succeeded by a row of minute spiniform hairs, terminated by two slender, elongate spines, elongate in increasing ratio distad; ventro-caudal margin unarmed. Median and caudal femora with a few hairs on the ventral margins, the more distal of which are replaced by spines in *lepta*, but not in *fulvella*. Pulvilli absent. Moderately well-developed arolia present between the simple, symmetrical tarsal claws.

Ceuthobia lepta[124] new species. Plate XIII, figures 5 and 6.

Males of the present species are recognizable by their slender form, weak pilosity of head, pronotum and tegmina, elongate tegmina with numerous costal veins, armed caudal femora and specialization of the subgenital plate.

The general type of the latter feature is much as in *C. fulvella* (Rehn), though distinctive specific difference is shown. The coloration of these two species is similar.

Type: ♂; Cordoba, Cordoba, Argentina. (E. Schulz.) [Hebard Collection, Type no. 674.]

Size very small, form very slender, surface polished and very weakly supplied with minute, erect hairs. Head projecting, surface smooth and polished, supplied with scattered, minute, erect hairs; space between antennal sockets three-quarters as wide as interocular space, the latter slightly over twice the occipital depth of the large eyes. Ocellar areas large, their flattened surfaces forming a sharp angle with the intervening area. Distal joint of maxillary palpi as long as combined length of second and third joints, expanding evenly to beyond median point, thence with ventral margin oblique to the acute apex; third joint very slightly longer than fourth. Pronotum rounded symmetrically trapezoidal in form, surface weakly convex, latero-caudal sulci of disk represented by broad and weakly concave areas diverging cephalad much as in *fulvella*, surface supplied with a few minute, erect, scattered hairs. Tegmina delicate, very elongate, with pilosity subobsolete, apex broadly rounded; costal veins numerous (13 to 14) and weakly oblique as in *fulvella*, anal field elongate pyriform, anal sulcus distinct; discoidal sectors (6) broken beyond apex of anal field, connected by moderately well developed cross-veinlets which form

[123] In *fulvella* decided reduction is shown, these proximal spines being absent and but one distal spine being developed.

[124] From λεπτή = slender.

rectangular interspaces, the majority regular in form. Wings fully developed, (7) costal veins heavily clubbed distad, interval between median and discoidal veins not as wide as greatest width between median and ulnar veins, supplied with transverse veinlets, ulnar vein unbranched, intercalated triangle well-developed. Median segment mesad with a V-shaped rounded ridge, the apex cephalad and supplied with agglutinated hairs, opposite this toward the cephalic margin of the segment is a small tuft of agglutinated hairs directed caudad. Supra-anal plate transverse, free margin broadly convex, showing a slight angulation. Subgenital plate asymmetrical, sinistral margin weakly convex and moderatey oblique to slightly beyond median point, dextral margin weakly convex and scarcely more strongly oblique. Sinistral style springing from a slight emargination proximad on sinistral margin beneath cercus, simple, cylindrical, very slender and nearly five times as long as wide. Dextral style situated at apex of plate, simple and unarmed, very similar to sinistral style except that it is slightly bent sinistro-caudad at end of proximal third, thence tapering to the acute apex. Ventro-cephalic margin of cephalic femora supplied with (1 or 2) heavy proximal spines (in the latter case with spiniform hairs between) succeeded by a row of minute spiniform hairs, terminated by two slender, elongate spines, of which the more distal is the longer; ventro-caudal margin unarmed. Median femora with ventral margins supplied with hairs and distad with one, but no distal, slender, chaetiform spine. Caudal femora with ventro-cephalic margin armed distad with three, but no distal, well-developed though slender spines, ventro-caudal margin armed distad with two similar spines. Genicular spines of median and caudal femora small and very slender. Caudal metatarsus slightly longer than combined length of succeeding joints, pilose, with hairs of ventral surface almost spiniform, pulvilli obsolete. Arolia small, but extending slightly over half distance to apices of claws.

Head buffy suffused with ochraceous-tawny, ocelli light buff, eyes blackish mummy brown. Pronotum with disk dull ochraceous-tawny, other portions transparent, weakly tinged with ochraceous-buff as are the tegmina. Wings transparent very faintly tinged with prouts brown, except between mediastine vein and costal margin where they are paler. Abdomen ochraceous-buff, slightly suffused distad. Cerci ochraceous-tawny. Ventral surface and limbs ochraceous-buff with a slight tawny tinge, except abdomen distad, which is weakly suffused with cinnamon-brown.

MEASUREMENTS (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Averias, Argentina, *paratype*	7.2	1.8	1.95	7.3	2.2
Icaño, Argentina, *paratype*	7.2	1.7	—	6.7	2
Cordoba, Argentina, *type*	8.5[125]	1.7	1.95	7.8	2.3

[125] Abdomen considerably distended.

In addition to the type, two paratypic males are at hand, one from Averias, Rio Salado, Santiago del Estero, Argentina, taken in April, the other from Icaño, Rio Salado, Santiago del Estero, Argentina.

Ceuthobia fulvella (Rehn)

1913. *Melestora fulvella* Rehn, Proc. Acad. Nat. Sci. Phila., 1913, p. 283, fig. 3. [♂; Misiones, Argentina.]

Carcarañia, Santa Fé, Argentina, 5 ♂, [Hebard Cln.].

The present specimens are so much smaller than the type that we at first believed a distinct species to be represented. Careful examination shows, however, that no feature of sufficient importance occurs to warrant separation.

The specialization of the median segment of the male abdomen is the same as described for *C. lepta* on page 294. The male subgenital plate was not originally described. It is asymmetrical, with sinistral margin weakly oblique and feebly concave to beyond the mesal point, supplied at end of proximal third with a minute, simple, straight style, set in a socket; dextral margin almost straight, produced, showing slight convexity distad and there terminating at apex of plate in a large socket, in which is set the dextral style; this style rounded, with a slender, elongate spine dextrad which curves sinistrad and at its base sinistro-caudad another similar spine of about half the length. The material here recorded agrees with the type in this and all other features, except size and a very slightly greater interocular width.

Length of body 5.5–6, length of pronotum 1.3–1.3, width of pronotum 1.8–1.8, length of tegmen 5.9–6.2, width of tegmen 1.85–1.9 mm.

LANTA new genus.

This genus includes two previously unknown Argentinian species. Nearest relationship is with *Ceuthobia*, males agreeing in the small size, moderately wide and not wrinkled interocular area, comparatively large ocellar areas, general form and contour of pronotum, sinistral tegmen without a diagonal channel, generally longitudinal character of discoidal sectors, wings of similar general proportions with radiate field folding fan-wise, absence of pulvilli and presence of well developed arolia.

It differs in the more regular tegminal venation with discoidal sectors all parallel to each other but weakly oblique to the sutural margin, wings with more numerous costal veins which are thickened (not clubbed) distad, smaller intercalated triangle, unspecialized

dorsal surface of male abdomen, different character of specialization of subgenital plate and more distinct limb spination.[126]

Genotype.—Lanta scotia new species.

Generic Description. Size minute, form moderately broad, elliptical; weakly convex surface polished, regularly but not thickly clothed with silky, erect, pile. Head with occiput slightly roughened and interocular area regularly and minutely pitted (from which spring the minute hairs), but not decidedly and irregularly rugose as in *Melestora*; interocular space wider than that between antennal sockets. Ocelli comparatively large, flat surfaces of ocellar areas forming a decided angle with plane of interocellar area. Pronotum elliptical, showing very slight flattening of the curvature of the latero-cephalic portions; surface convex, the lateral portions showing marked deflection; latero-caudal sulci of disk represented by broad and well defined concave areas, which diverge cephalad, the intervening section evenly and weakly convex. Tegmina coriaceous, bluntly elongate elliptical, but shorter and broader than in the related genera, width nearly subequal through mesal half, apex broadly rounded; numerous costal veins very strongly oblique; anal field elongate pyriform, anal sulcus distinct; discoidal sectors longitudinal or nearly so, connected by moderately well-developed crossveinlets, which form regularly rectangulate interspaces. Wings fully developed, exceedingly delicate; costal veins thickened except near base; interval between median and discoidal veins broad, with transverse veinlets; ulnar vein bifurcate; intercalated triangle small but distinct; radiate field folding fan-wise. Dorsal surface of abdomen unspecialized.

Cephalic femora with ventro-cephalic margin armed with a single elongate spine, succeeded by a row of minute spiniform hairs, terminated by one or two elongate spines. Other ventral femoral margins, except the wholly unarmed ventro-caudal margin of the cephalic femora, supplied with minute hairs but unarmed except for a single elongate distal spine; median and caudal femora with an elongate genicular spine. Caudal tarsus about three-quarters as long as caudal tibia, succeeding joints three-quarters as long as metatarsus, pilose but with ventral surfaces unspined. Pulvilli absent. Arolia moderately large, extending to near apices of simple, symmetrical tarsal claws.

Lanta scotia[127] new species. Plate XIII, figures 7 and 8.

This species and *L. peniculiger,* described on page 298, are quite similar in general appearance. Known only from the male sex, the diminutive individuals are of a solidly dark brown coloration,

[126] This is due to the fact that in the present genus the few heavier spines are stout and the ventral femoral margins are not supplied with hairs which increase n size to become slender spines distad, as is true for *C. lepta* here described.

[127] From σκότια = dark.

with tegmina comparatively broad and short, broadly rounded distad, with venation more regular than in the forms of nearest affinity.

Compared with *peniculiger*, the present species differs in the larger size, slightly less delicate character of wings and portion of dextral tegmen concealed when at rest, dorsal surface of abdomen without hairs and distinctive type of genitalic specialization.

Type: ♂; Cordoba, Cordoba, Argentina. (F. Schulz.) [Hebard Collection, Type no. 673.]

In addition to the features given in the generic description, we would note the following characters which appear to be of specific value. Interocular space slightly wider than that between antennal sockets and wider than the occipital depth of the large eyes by about one-fourth. Distal joint of maxillary palpi as long as combined length of second and third joints, expanding evenly to beyond median point, thence with ventral margin oblique to the acute apex; third joint very slightly longer than fourth. Costal veins of tegmina numerous (16 to 19, including mediastine vein and its branches) discoidal sectors (5 to 7 in series) longitudinal, except in area beyond apex of anal field where three or four are weakly oblique. Dorsal surface of abdomen without hairs. Supra-anal plate transverse, free margin broadly and evenly convex. Paired plate beneath supra-anal plate with dextral portion developed ventrad from beneath cercus in a slender, straight finger, directed mesodorsad and twice as long as the sinistral style, back of which is a large plate, subchitinous in all but peripheral portion; sinistral portion developed into a smaller though large chitinous lobe, which tapers and curves dorsad to its acute apex. Subgenital plate asymmetrical, sinistral margin weakly sinuous and very weakly oblique to slightly beyond median point, with sinistral style mesad on this margin, springing from a socket on the dorsal edge; dextral margin more strongly oblique to just before median point, from the socketed apex of the weak triangular production formed by these margins springs the dextral style. Styles small, simple; the sinistral straight two and one-half times as long as its basal width, tapering slightly to the rounded apex; the dextral style heavier, blunter and shorter, scarcely twice as long as its basal width, showing a slight curvature ventrad and with dorsal surface thickly armed with very minute spines.

General coloration deep bister. Head blackish chestnut brown; ocelli light buff, (type with ocelli discolored, dark); antennae, palpi and mouthparts snuff brown. Pronotum deep bister. Tegmina weakly transparent, heavily and evenly suffused with dresden brown, except in portion of dextral tegmen, concealed when at rest, which is transparent and very weakly suffused. Wings transparent, colorless except in area of costal veins and distad in anterior field where they are suffused with dresden brown. Dorsal surface of

abdomen cinnamon-buff, deepening to warm sepia distad, the supra-anal plate of this color, the cerci snuff brown. Limbs and ventral surface clay color, deepening to prouts brown distad on abdomen. In some of the paratypes before us the limbs and ventral surface are snuff brown, the latter becoming blackish toward the margins.

MEASUREMENTS (*in millimeters*).

♂	Length of body	Length of pronotum	Width of pronotum	Length of tegmen	Width of tegmen
Icaño, Argentina, *paratype*	6.3	1.8	2.4	6.4	2.4
Icaño, Argentina, *paratype*	6.8	1.95	2.5	6.7	2.6
La Palisa del Bracho, Argentina, *paratype*	6.8	1.95	2.6	6.4	2.4
Cordoba, Argentina, *type*	6.3	1.8	2.3	5.9	2.1

In addition to the type, three paratypic males from Icaño, Santiago del Estero, Argentina, and one paratypic male from La Palisa del Bracho, Santiago del Estero, Argentina, taken in December, have been examined.

Lanta peniculiger[128] new species. Plate XIII, figures 9 and 10.

The species is related to *L. scotia*, under which species a comparison is made on page 297.

Type: ♂; Las Garzas, Rio Las Garzas, Santa Fé, Argentina. [Paris Museum.]

We give the following characters, supplementing those described in the generic treatment. Size smaller, structure more delicate than in *scotia*. Space between antennal sockets three-quarters as wide as interocular space, the latter wider than the occipital depth of the large eyes by slightly over one-fourth. Maxillary palpi as described for *scotia*. Tegmina with numerous (15 and 16) costal veins, discoidal sectors (4 and 5) longitudinal. Dorsal surface of abdomen unspecialized, but with median segment supplied with a number of very fine microscopic hairs in median portion, succeeding tergites with fewer similar hairs mesad. Supra-anal plate transverse, free margin laterad straight, oblique, mesad straight, transverse in broad section, the angles thus formed rounded. Paired plate beneath supra-anal plate with dextral portion developed into a large plate extending to median line, subchitinous mesad, with a minute projection mesad on its ventral margin; sinistral portion as in *scotia*, developed into a smaller though large chitinous lobe, which tapers and curves dorsad to its acute apex. Subgenital plate asymmetrical, sinistral margin weakly convex and weakly oblique to median point, with sinistral style just before that point; dextral margin more strongly convex and oblique to median point, where by a sudden small offset the juncture of these margins is formed, the specialized dextral style projecting from this angulation, the

[128] The brush carrier, in allusion to the brush-like dextral style.

margins of which are subchitinous. Sinistral style simple, straight, cylindrical, about four times as long as basal width, tapering to the rounded apex; dextral style represented by a brush of agglutinated spiniform hairs, nearly as wide as the length of the sinistral style, the median length of these hairs slightly shorter than the width of the brush, this brush springing from the dorsal surface of the plate just within the free margin.

General coloration deep bister. Head blackish chestnut brown; ocelli light buff; proximal antennal joints, palpi and mouthparts prouts brown, remaining portions of antennae buckthorn brown tinged with tawny. Pronotum deep bister. Tegmina weakly transparent, heavily and evenly suffused with saccardos umber, except in portion of dextral tegmen concealed when at rest, which is hyaline, transparent, the wing beneath showing whitish. Wings transparent, almost colorless, except area of costal veins and distal margin of anterior field, where they are strongly suffused with saccardos umber. Abdomen, underparts and limbs dresden brown, the abdomen deepening to prouts brown distad.

Length of body 6, length of pronotum 1.7, width of pronotum 2, length of tegmen 5.9, width of tegmen 2.3, length of wing 5.5, width of wing 3.7 mm.

The type is unique.

Melestora argentina (Rehn) Plate XIV, figures 9 and 10.

1915. *Latindia argentina* Rehn, Proc. Acad. Nat. Sci. Phila., 1915, p. 276, figs. 2 and 3. [♂; Misiones, Argentina.]

Falls of the Rio Iguazu, Misiones, Argentina, 1 ♂.

The present insect would appear to be extremely close to *M. fuscella* Stål. Examination of the type, or material from Rio de Janeiro, Brazil, is necessary before the validity of *argentina*, or its synonymy, can be established. We have discussed the genus *Melestora* on page 250 of the present paper.

PERISPHAERINAE.

Parahormetica tumulosa Brunner

1865. *P[arahormetica] tumulosa* Brunner, Nouv. Syst. Blatt., p. 385, pl. XII, figs A to c'. [♂, ♀; Brazil.]

Villa Lutecia, near San Ignacio, Misiones, Argentina, January to April, 1 ♀, 4 juv.

In this adult, as well as in those recorded on page 254, the tegmina are immaculate. The present material is there further discussed.

The following list shows the linear arrangement of the species treated in this paper. It is furnished as an aid to the student, particularly in finding the position of the new genera and species

described, since the paper itself is divided into three sections on a geographic basis. The names of the new species, described in this study, are preceded by an asterisk.

Explanation of Plates IX to XV.

Plate IX.—Fig. 1. *Anaplecta xanthopeltis* new species. ♂, *type*. Rio Itaya, Peru. Dorsal view of wing. (×5).

Fig. 2. *Anaplecta xanthopeltis* new species. ♂, *type*. Rio Itaya, Peru. Ventral view of subgenital plate. (Much enlarged.)

Fig. 3. *Anaplecta maronensis* new species. ♀, *type*. La Forestière, French Guiana. Dorsal view of pronotum. (×15).

Fig. 4. *Eudromiella aglaia* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Dorsal view. (×4).

Fig. 5. *Eudromiella aglaia* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 6. *Dasyblatta chopardi* new species. ♂, *type*. Colonia Florencia, Chaco, Argentina. Dorsal view of distal portion of abdomen. (Much enlarged).

Fig. 7. *Dasyblatta chopardi* new species. ♂, *type*. Colonia Florencia, Chaco, Argentina. Ventral view of subgenital plate. (Same scale as figure 6).

Fig. 8. *Dasyblatta chopardi* new species. ♂, *type*. Colonia Florencia, Chaco, Argentina. Caudal view of subgenital plate. (Same scale as figure 6).

Fig. 9. *Dasyblatta thaumasia* new species. ♂, *type*. Pará, Pará, Brazil. Dorsal view of distal portion of abdomen. (Same scale as figure 6).

Fig. 10. *Dasyblatta thaumasia* new species. ♂, *type*. Pará, Pará, Brazil. Ventral view of subgenital plate. (Same scale as figure 6).

Fig. 11. *Dasyblatta thaumasia* new species. ♂, *type*. Pará, Pará, Brazil. Caudal view of subgenital plate. (Same scale as figure 6).

Fig. 12. *Sciablatta poecila* new species. ♂, *type*. St Jean du Maroni, French Guiana. Dorsal view. (×4).

Fig. 13. *Sciablatta poecila* new species. ♂, *type*. St. Jean du Maroni, French Guiana. Cephalic view of head. (×8).

Fig. 14. *Sciablatta poecila* new species. ♂, *type*. St. Jean du Maroni, French Guiana. Ventral view of subgenital plate. (Much enlarged).

Fig. 15. *Sciablatta poecila* new species. ♂, *type*. St. Jean du Maroni, French Guiana. Lateral outline of style. (Greatly enlarged).

Fig. 16. *Cariblatta mesembrina* new species. ♀, *type*. Carcaraña, Santa Fé, Argentina. Dorsal view. (×5).

Fig. 17. *Neoblattella janeirae* new species. ♂, *type*. Tijuca, Rio de Janeiro, Brazil. Dorsal view of pronotum. (×4).

Fig. 18. *Neoblattella janeirae* new species. ♂, *type*. Tijuca, Rio de Janeiro, Brazil. Caudal view of apex of subgenital plate. (Greatly enlarged).

Fig. 19. *Neoblattella janeirae* new species. ♂, *type*. Tijuca, Rio de Janeiro, Brazil. Ventral view of subgenital plate. (Much enlarged).

Fig. 20. *Neoblattella conspersa* (Brunner). ♂. Contamano, Rio Ucayali, Peru. Ventral view of subgenital plate (Much enlarged).

Fig. 21. *Neoblattella platystylata* new species. ♂, *type*. Igarapé-Assu, Pará, Brazil. Ventral view of subgenital plate. (Same scale as figure 20).

Fig. 22. *Neoblattella platystylata* new species. ♀, *paratype*. Igarapé-Assu, Pará, Brazil. Dorsal view of distal portion of subgenital plate, showing armament. (Greatly enlarged).

Fig. 23. *Neoblattella platystylata* new species. ♀, *paratype*. Igarapé-Assu, Pará, Brazil. Caudal view of distal portion of subgenital plate, showing armament. (Same scale as figure 22).

Plate X.—Fig. 1. *Neoblattella platystylata* new species. ♀, *paratype*. Igarapé-Assu, Pará, Brazil. Cephalic view of head. (Much enlarged).

Fig. 2. *Neoblattella eudromielloides* new species. ♂, *type*. Passa-Quatro, Minas Geraes, Brazil. Dorsal view of pronotum. (×6).

Fig. 3. *Neoblattella eudromielloides* new species. ♂, *type*. Passa-Quatro,

Minas Geraes, Brazil, Ventral view of subgenital plate. (Much enlarged).

Fig. 4. *Neoblattella eudromielloides* new species. ♂, *type*. Passa-Quatro, Minas Geraes, Brazil. Caudal view of subgenital plate. (Greatly enlarged).

Fig. 5. *Neoblattella berlandi* new species. ♂, *type*. Upper Amazon Basin, between Peru and Bolivia. Dorsal view. (×4).

Fig. 6. *Neoblattella berlandi* new species. ♂, *type*. Upper Amazon Basin, between Peru and Bolivia. Ventral view of subgenital plate. (Same scale as figure 3).

Fig. 7. *Neoblattella berlandi* new species. ♂, *type*. Upper Amazon Basin, between Peru and Bolivia. Caudal view of subgenital plate. (Same scale as figure 3).

Fig. 8. *Neoblattella tapenagae* new species. ♀, *type*. Colonia Florencia, Chaco, Argentina. Dorsal view. (×3).

Fig. 9. *Liosilpha pumicata* (Stål). ♀. Tijuca, Rio de Janeiro, Brazil. Cephalic outline of cephalic femur. (Much enlarged).

Fig. 10. *Liosilpha pumicata* (Stål). ♀. Tijuca, Rio de Janeiro, Brazil. Distal outline of tarsal claws and arolium. (Greatly enlarged).

Fig. 11. *Leuropeltis atopa* new species. ♂, *type*. Gourdonville, French Guiana. Dorsal view. (×3).

Fig. 12. *Leuropeltis atopa* new species. ♂, *type*. Gourdonville, French Guiana. Cephalic outline of cephalic femur. (Much enlarged).

Fig. 13. *Leuropeltis atopa* new species. ♂, *type*. Gourdonville, French Guiana. Ventral view of subgenital plate. (Much enlarged).

Fig. 14. *Litoblatta brasiliensis* (Brunner). ♂. Cordoba, Cordoba, Argentina. Dorsal view (×3).

Fig. 15. *Litoblatta brasiliensis* (Brunner). ♂. Cordoba, Cordoba, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 16. *Litoblatta brasiliensis* (Brunner). ♀. San Rafael, Mendoza, Argentina. Dorsal outline. (×3).

Fig. 17. *Litoblatta brasiliensis* (Brunner). ♀. San Rafael, Mendoza, Argentina. Dorsal-caudal view of distal portion of abdomen, showing the manner in which the sixth tergite (A) is produced over the supra-anal plate (B).[129]

PLATE XI.—Fig. 1. *Ischnoptera carearana* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Dorsal outline. (×4).

Fig. 2. *Ischnoptera carcarana* new species. ♂, *paratype*. Carcaraña, Santa Fé, Argentina. Dorsal outline of head, pronotum and tegmina, showing the brachypterous form. (×4).

Fig. 3. *Ischnoptera carearana* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 4. *Ischnoptera argentina* new species. ♂, *type*. San Nicolas, Buenos Aires, Argentina. Ventral view of supra-anal plate, showing appendages at bases of cerci. (Much enlarged).

Fig. 5. *Ischnoptera argentina* new species. ♂, *paratype*. San Nicolas, Buenos Aires, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 6. *Ischnoptera argentina* new species. ♀, *allotype*. San Nicolas, Buenos Aires, Argentina. Dorsal view of supra-anal plate. (Much enlarged)

Fig. 7. *Ischnoptera litostylata* new species. ♂, *type*. Las Garzas, Santa Fé, Argentina. Dorsal view of supra-anal plate. (Much enlarged).

Fig. 8. *Ischnoptera litostylata* new species. ♂, *type*. Las Garzas, Santa Fé, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 9. *Ischnoptera saussurei* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Dorsal view of supra-anal plate. (Much enlarged).

Fig. 10. *Ischnoptera saussurei* new species. ♂, *type*. Carcaraña, Santa Fé, Argentina. Ventral view of subgenital plate. (Much enlarged).

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[129] In direct dorsal aspect, a very narrow caudal marginal portion of the subgenital plate is alone visible.

Fig. 11. *Ischnoptera icano* new species. ♂, *type*. Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. Dorsal view of pronotum. (×7).
Fig. 12. *Ischnoptera icano* new species. ♂, *type*. Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. Dorsal view of supra-anal plate. (Much enlarged).
Fig. 13. *Ischnoptera icano* new species. ♂, *type*. Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. Ventral view of subgenital plate. (Much enlarged).
Fig. 14. *Pseudischnoptera lineata* (Olivier). ♂. St. Jean du Maroni, French Guiana. Ventral view of subgenital plate. (Much enlarged).
Fig. 15. *Pseudischnoptera rhabdota* new species. ♂, *type*. Border of Rio Salado, near Icaño, Satiago del Estero, Argentina. Dorsal view. (×3)
Fig. 16. *Pseudischnoptera rhabdota* new species. ♂, *type*. Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. Ventral view of subgenital plate. (Much enlarged).
Fig. 17. *Pseudischnoptera rhabdota* new species. ♀, *paratype*. Border of Rio Salado, near Icaño, Santiago del Estero, Argentina. Dorsal outline. (×3).

Plate XII.—Fig. 1. *Epilampra berlandi* new species. ♂, *type*. Icaño, Santiago del Estero, Argentina. Dorsal view. (×4).
Fig. 2. *Epilampra berlandi* new species. ♂, *type*. Icaño, Santiago del Estero, Argentina. Cephalic view of head. (×9).
Fig. 3. *Hedaia yersiniana* (Saussure). ♂. Curityba, Paraná, Brazil. Dorsal view[130]. (×1¼).
Fig. 4. *Hedaia yersiniana* (Saussure). ♂. Curityba, Paraná, Brazil. Dorsal outline of pronotum. (×1¼).
Fig. 5. *Hyporhicnoda maronensis* new species. La Forestière, French Guiana. Dorsal view. (×2).
Fig. 6. *Schizopilia fissicollis* (Serville). ♂. St. Laurent du Maroni, French Guiana. Dorsal outline of pronotum. (×1½).
Fig. 7. *Tribonium conspersum* (Guerin and Percheron). Immature ♂. Tijuca, Rio de Janeiro, Brazil. Dorsal view. (2⅛).
Fig. 8. *Tribonidium signaticollis* (Burmeister). ♂. Curityba, Paraná, Brazil. Dorsal view. (×3).
Fig. 9. *Tribonidium amplum* new species. ♂, *type*. Tijuca, Rio de Janeiro, Brazil. Dorsal view. (×3).
Fig. 10. *Tribonidium amplum* new species. ♀, *allotype*. Tijuca, Rio de Janeiro, Brazil. Dorsal outline. (×3).
Fig. 11. *Zetobora emarginata* Burmeister. ♂. La Forestière, French Guiana. Dorsal outline of pronotum. (×3).
Fig. 12. *Zetobora emarginata* Burmeister. ♀. La Forestière, French Guiana, Dorsal outline of pronotum. (×3).

Plate XIII.—Fig. 1. *Zetoborella gemmicula* new species. ♂, *type*. St. Jean du Maroni, French Guiana. Dorsal view. (×3).
Fig. 2. *Zetoborella gemmicula* new species. ♀, *allotype*. St. Jean du Maroni, French Guiana. Dorsal view of pronotum. (×3).
Fig. 3. *Phortioeca nimbata* Burmeister. ♂. La Forestière, French Guiana. Dorsal view. (×2½).
Fig. 4. *Petasodes mouffeti* (Kirby). Immature ♀. Tijuca, Rio de Janeiro, Brazil. Dorsal view. (×1½).
Fig. 5. *Ceuthobia lepta* new species. ♂, *type*. Cordoba, Cordoba, Argentina. Dorsal view. (×6).
Fig. 6. *Ceuthobia lepta* new species. ♂, *type*. Cordoba, Cordoba, Argentina. Ventral view of subgenital plate. (Much enlarged).

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[130] Due to the decided declivity cephalad of the pronotum, this dorsal view of the entire insect actually gives a dorsal-caudal view of the pronotum. We have herefore given a directly dorsal outline of the pronotum itself in figure 4.

Fig. 7. *Lanta scotia* new species. ♂, *type*. Cordoba, Cordoba, Argentina. Dorsal view. (×6).

Fig. 8. *Lanta scotia* new species. ♂, *type*. Cordoba, Cordoba, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 9. *Lanta peniculiger* new species. ♂, *type*. Las Garzas, Santa Fé, Argentina. Ventral view of subgenital plate. (Much enlarged).

Fig. 10. *Lanta peniculiger* new species. ♂, *type*. Las Garzas, Santa Fé, Argentina. Dorsal view of the simple sinistral and remarkably specialized dextral style. (Greatly enlarged).

PLATE XIV.—Fig. 1. *Blaptica interior* new species. ♂, *type*. Cordoba, Cordoba, Argentina. Dorsal view. (×1¾).

Fig. 2. *Blaptica dubia* (Serville). ♂. Cordoba, Cordoba, Argentina. Dorsal view. (×1¾).

Fig. 3. *Eublaberus biolleyi* (Rehn). ♀, *type*. Plains of Santa Clara, Reventazon River, Costa Rica. Dorsal view of pronotum. (×1½).

Fig. 4. *Eublaberus biolleyi* (Rehn). ♀. Cabima, Panama. Dorsal view of pronotum. (×1½).

Fig. 5. *Eublaberus biolleyi* (Rehn). ♂. St. Jean du Maroni, French Guiana. Dorsal view of pronotum. (×1½).

Fig. 6. *Eublaberus biolleyi* (Rehn). ♀. Caparo, Trinidad. Dorsal view of pronotum. (×1½).

Fig. 7. *Eublaberus biolleyi* (Rehn). St. Jean du Maroni, French Guiana. Dorsal view of pronotum. (×1½).

Fig. 8. *Eublaberus argentinus* new species. ♀, *type*. Mistol Passo, Santiago del Estero, Argentina. Dorsal view of pronotum (×1½).

Fig. 9. *Melestora argentina* (Rehn). ♂. Falls of the Rio Iguazu, Misiones, Argentina. Dorsal outline of sinistral tegmen. (×5½).

Fig. 10. *Melestora argentina* (Rehn). ♂. Falls of the Rio Igazu, Misiones, Argentina. Dorsal outline of wing. (×5½).

Fig. 11. *Chorisoneura guianae* new species. ♂, *type*. Bartica, British Guiana. Dorsal view of the tegmen. (×5).

Fig. 12. *Chorisoneura guianae* new species. ♂, *type*. Bartica, British Guiana. Ventral view of subgenital plate. (Much enlarged).

Fig. 13. *Chorisoneura barticae* new species. ♂, *type*. Bartica, British Guiana. Ventral view of subgenital plate. (Much enlarged).

PLTATE XV.—Fig. 1. *Euphyllodromia chopardi* new species. ♂, *type*. Bartica British Guiana. Dorsal view. (×4).

Fig. 2. *Euphyllodromia chopardi* new species. ♂, *type*. Bartica, British Guiana. Ventral view of subgenital plate. (Much enlarged).

Fig. 3. *Phoraspis brachytaenia* new species. ♂, *type*. State of Santa Catharina, Brazil. Dorsal view of sinistral tegmen. (×2½).

Fig. 4. *Phoraspis picta* (Drury). ♂, *topotype*. Tijuca, Rio de Janeiro, Brazil. Dorsal view of sinistral tegmen. (×2½).

Fig. 5. *Oulopteryx dascilloides* new species. ♂, *type*. Pariacabo, French Guiana. Dorsal view. (×5).

Fig. 6. *Oulopteryx dascilloides* new species. ♂, *type*. Pariacabo, French Guiana. Ventral view of subgenital plate. (Much enlarged).

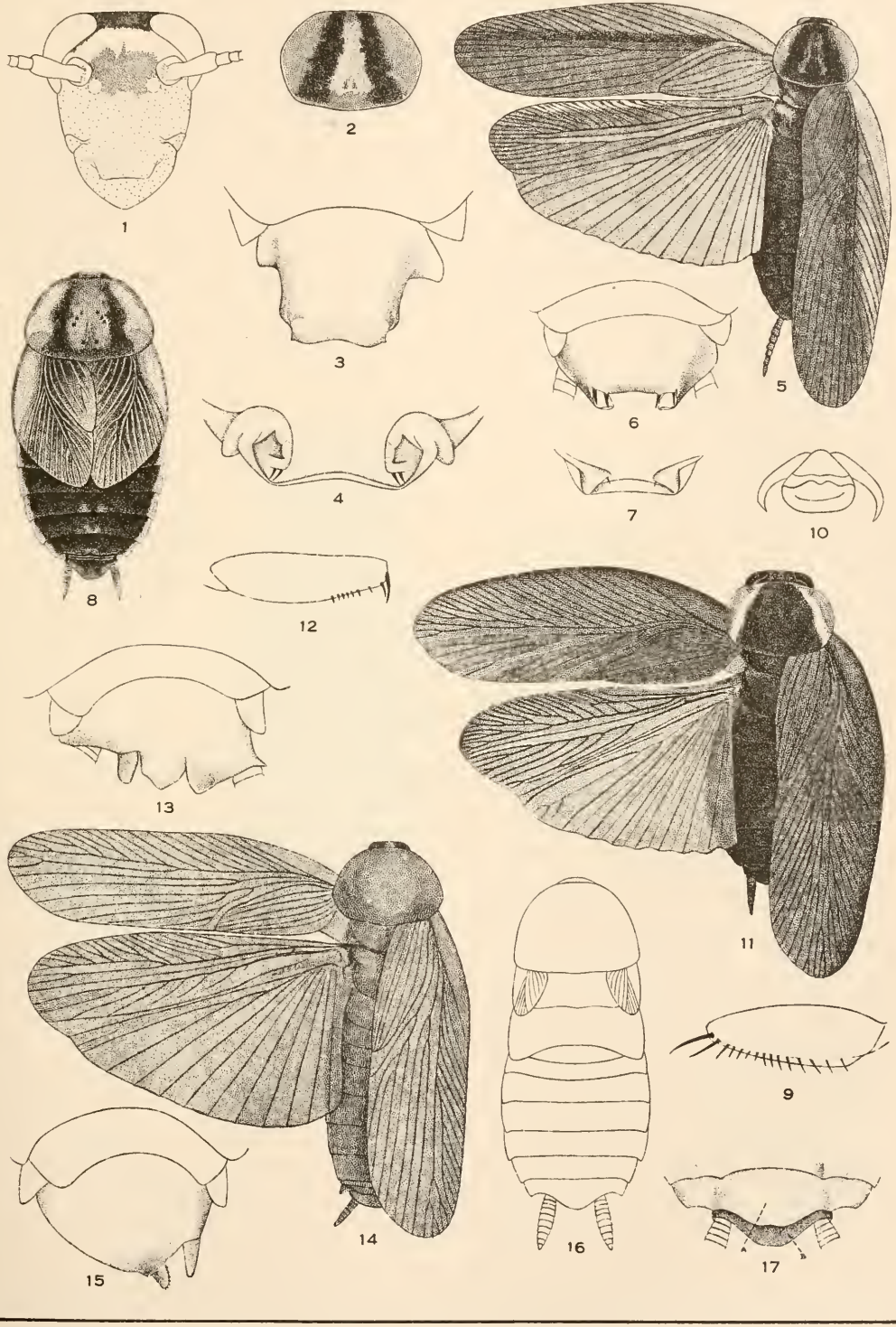
Fig. 7. *Oulopteryx meliponarum* new species. ♂, *type*. Fazenda do Sobrado, Minas Geraes, Brazil. Dorsal view. (×5).

Fig. 8. *Oulopteryx meliponarum* new species. ♂, *type*. Fazenda do Sobrado, Minas Geraes, Brazil. Caudal view of supra-anal plate and fang-like processes beneath it, within the anal chamber. (Greatly enlarged).

Fig. 9. *Oulopteryx meliponarum* new species. ♂, *type*. Fazenda do Sobrado, Minas Geraes, Brazil. Ventral view of subgenital plate. (Same scale as figure 6).

Fig. 10. *Oulopteryx meliponarum* new species. ♀, *paratype*. Fazenda do Sobrado, Minas Geraes, Brazil. Ventral view of subgenital plate. (Same scale as figure 6).

HEBARD: SOUTH AMERICAN BLATTIDAE.



HEBARD: SOUTH AMERICAN BLATTIDAE.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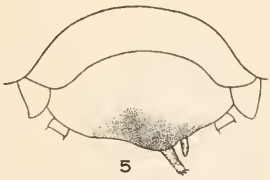
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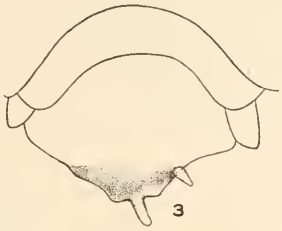
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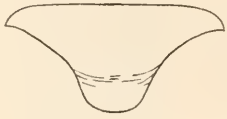
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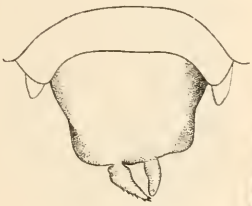
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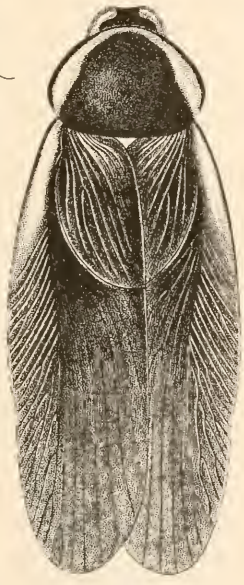
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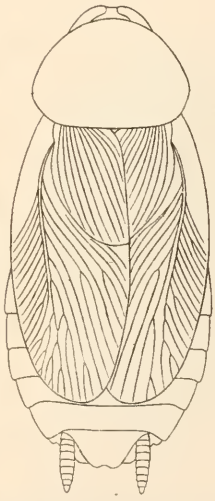
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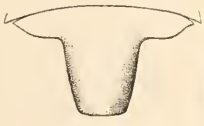
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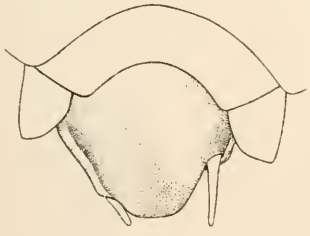
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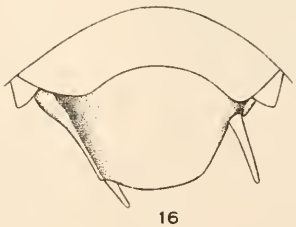
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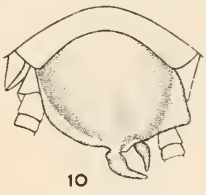
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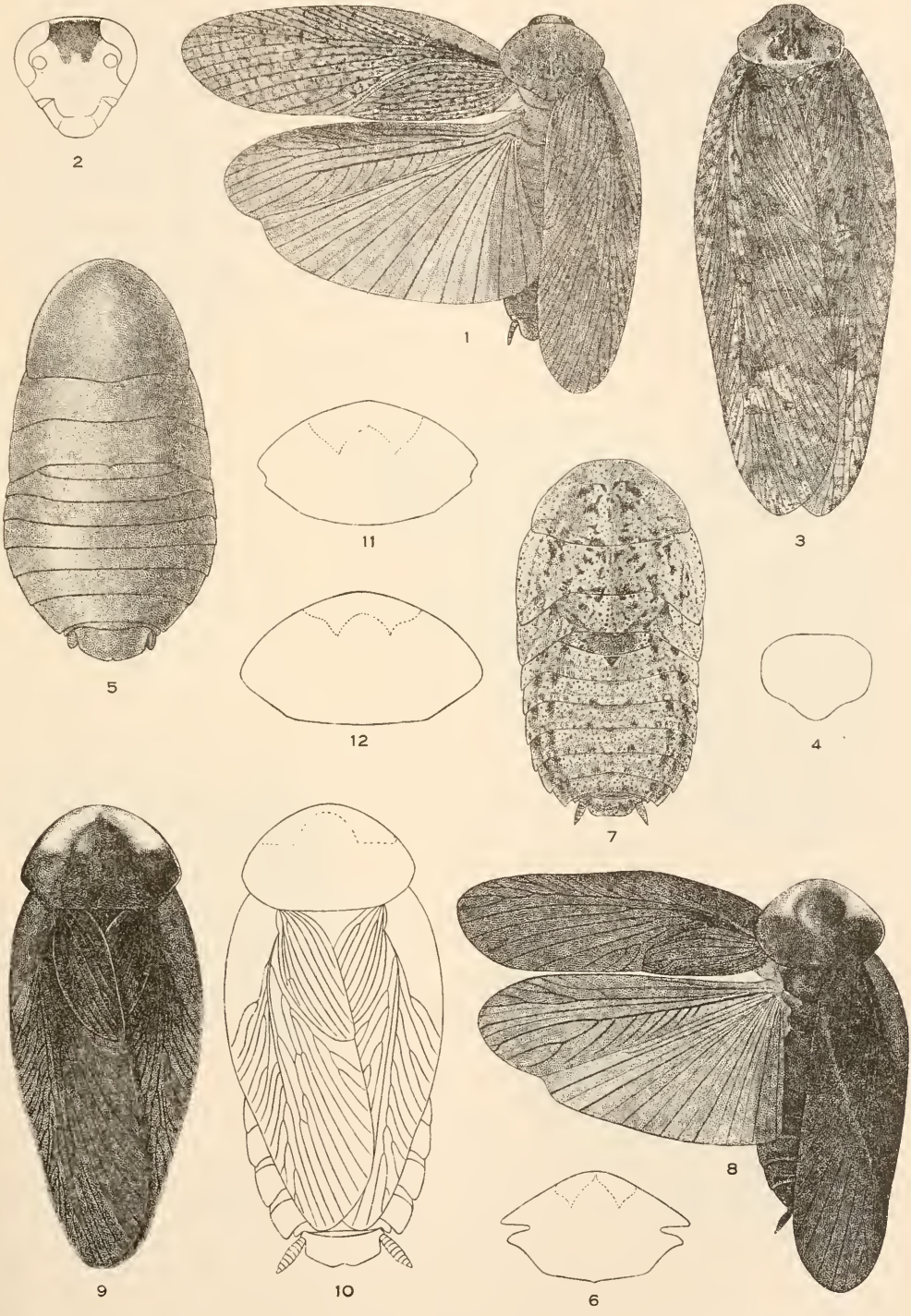

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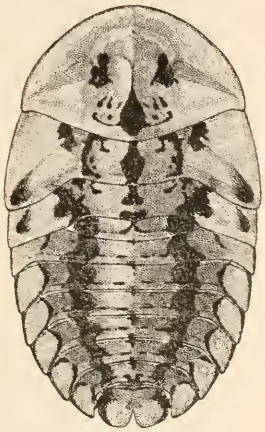

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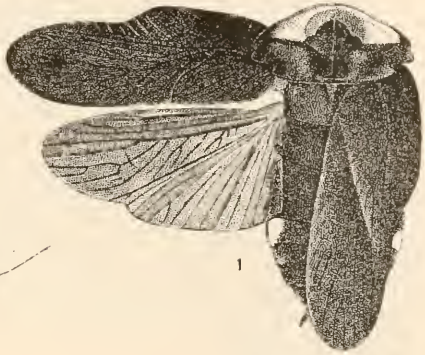

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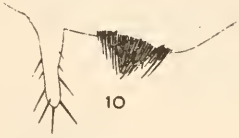

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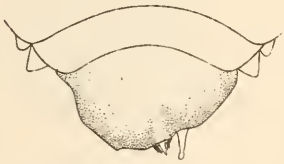

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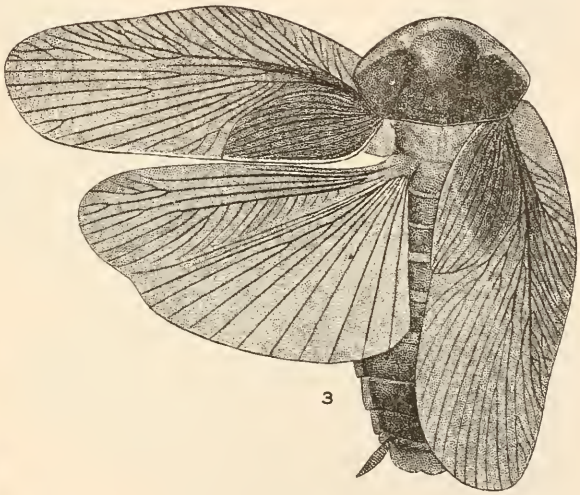

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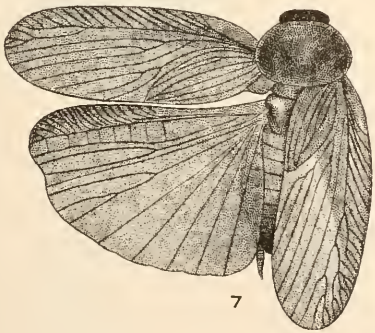

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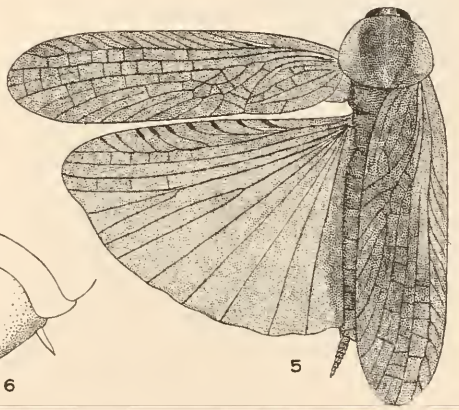

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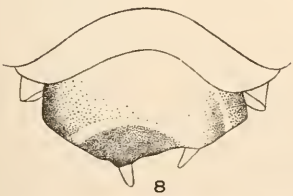

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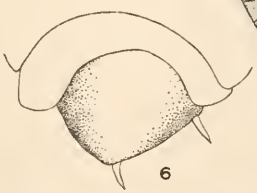

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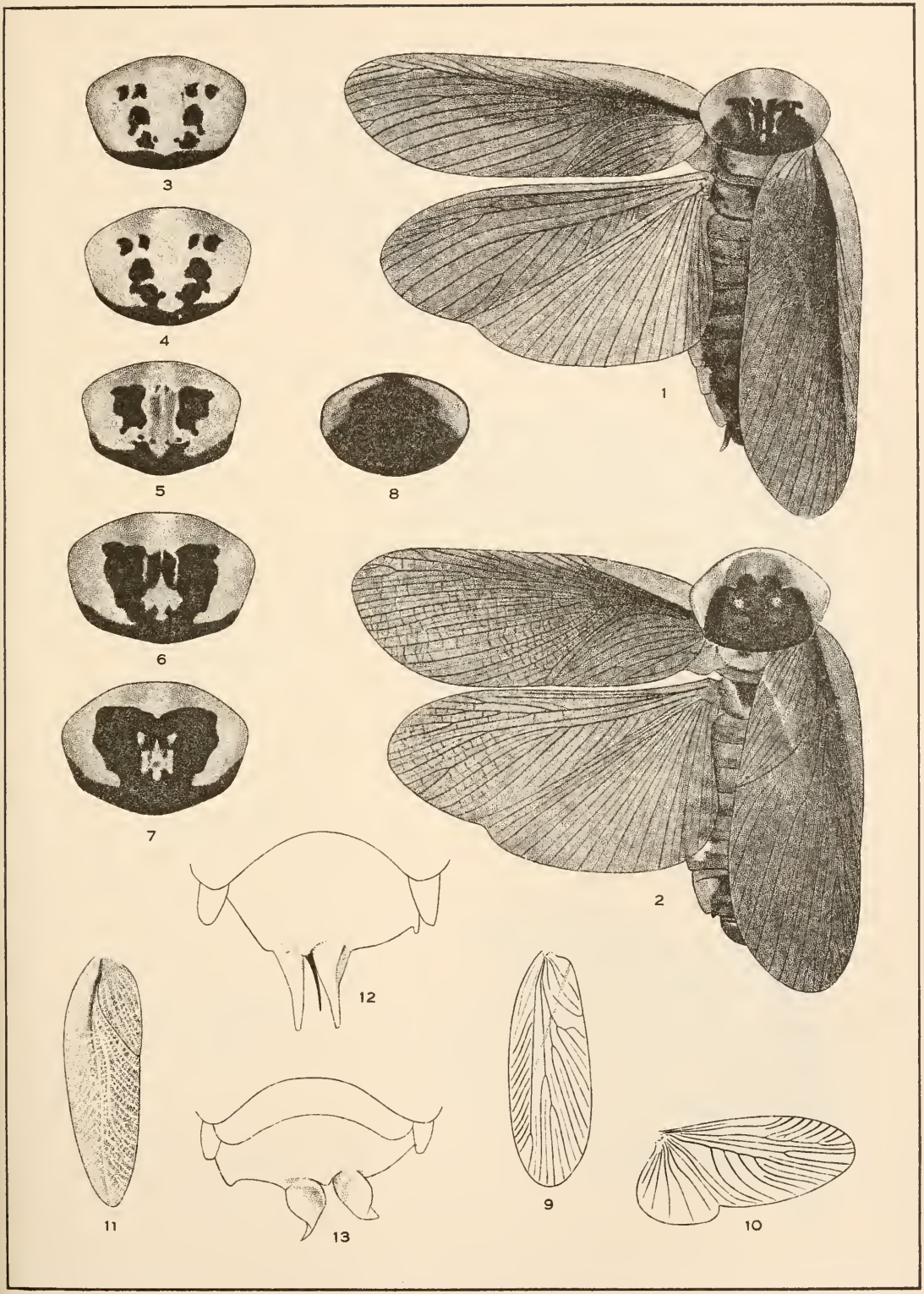

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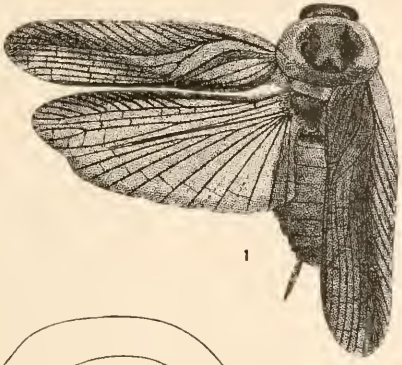
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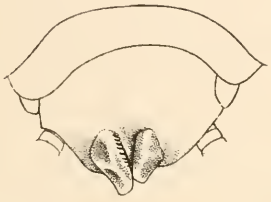
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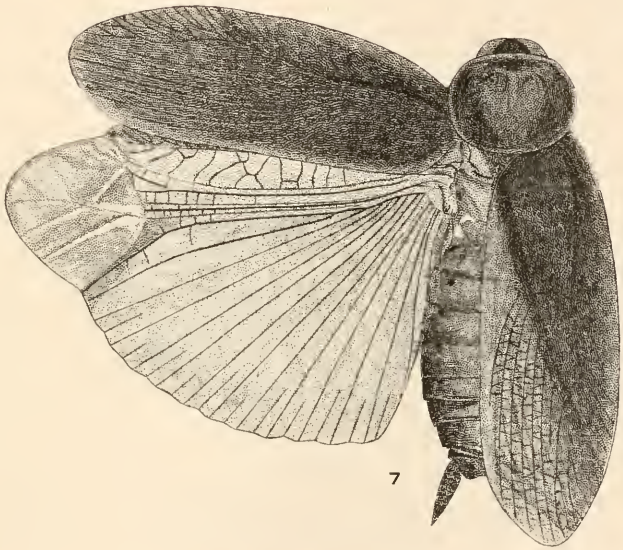
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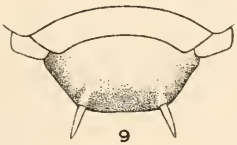
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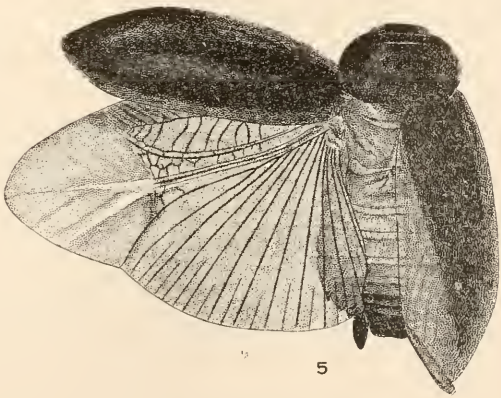
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